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Cover Crops For Citrus Groves

By W. E. Stokes, Agronomist, Florida Experiment Station

Some form of cover cropping has been practiced by some of our Florida growers for many years. Some use a natural cover crop, others use such crops as cowpeas, velvet beans and beggarweed which with the exception of beggarweed have to be planted each year. Of recent years Crotalaria, a plant not unlike beggarweed in general characteristics including reseeding habit, has come into rather extensive use.

Why Use Cover Crops

In considering cover crops for citrus groves the following questions quite naturally come up: Why use cover crops at all? What good will a cover crop do? Does a cover crop warrant the expense of growing it? What effect does a cover crop have on tree growth? What effect does a cover crop have on fruit quality and yield? Does a cover crop affect insect control? Does a cover crop have any effect on citrus fruit diseases or their control? Will a cover crop reduce the fertilizer bill?

Some growers evidently must think that cover crops grown and turned under exert a favorable influence on the citrus tree and citrus fruit else there would hardly be as many using cover crops of various kinds. I imagine if a vote were taken by this body this morning the majority of you would vote in favor of a cover crop of some kind for your groves. Therefore, it is taken for granted that a

cover crop is a profitable thing to grow in a citrus grove. That being the case we can proceed with our theoretical reason for the use of cover crops in a citrus grove.

A cover crop is supposed theoretically to do the following things:

1. Prevent washing of land.
2. Prevent leaching of soluble plant food.
3. Add nitrogen to the soil if a legume.
4. Stimulate bacterial activity.
5. Render plant food more available.
6. Add organic matter to the soil.
7. Not to deplete phosphate and potash supply.
8. Increase tree growth.
9. Increase, eventually, fruit production.
10. Decrease fertilizer nitrogen costs (if legume).

The question is quite naturally asked, does a cover crop in the average Florida citrus grove do all of the above things or maybe does it do enough of a part of the above things to make it a profitable practice? I repeat does a cover crop do enough of the things it is theoretically supposed to do to make the growing of the cover crop profitable?

If we were dealing today with annual plants such as corn or cotton I could tell you that we have some pretty definite answers to the questions asked because it has been dem-

onstrated experimentally and under actual farm practice in a number of Southeastern states that a cover crop of vetch or Austrian peas for instance will on the average double the yield of corn the first time you grow a crop of corn after turning under a good crop of vetch or Austrian peas. It has also been found that a good crop of vetch or peas turned under will supply all the nitrogen needed by a corn crop and the yield is only limited then by the available moisture at the critical period of the corn. Added amount of nitrogen to a corn crop under the above conditions has not been found profitable.

But how about the cover crop when it comes to the perennial plant known as citrus? Unfortunately Florida does not have any definite experimental data of long time accumulation to go to.

The only other state in the union growing citrus on a scale comparable to Florida is California. They use winter crops, manure and coarse straws such as from beans, peas and alfalfa. Their soils and their distribution of rainfall is not like ours. Maybe the underlying principles however are the same. In 1925 a communication from a member of the California Experiment Station staff to the writer was as follows: "The winter cover crop has a pronounced fertilizer value in the young citrus orchard and in the older orchard, a re-

placement value of three to five tons of manure."

"So far as the value of the cover crop is concerned, the principal data available have to do with the leguminous winter cover crop. Under favorable conditions the late summer cover crop may have a positive fertilizer value, especially in the young grove, but in the bearing grove the factors entering into its management are so complex that it is doubtful whether they can be satisfactorily controlled. Experience and observation have indicated that, under many conditions at least, the growing of a summer cover crop in the citrus orchard is a practice of doubtful value."

"In the young orchard the fertilizer value of the winter cover crop is unquestionably high as has been brought out strikingly in work done at the Citrus Experiment Station and reported on in 1918 in California Experiment Station Bulletin 292. This work indicates conclusively that in the young orchard the cover crop is a means of greatly stimulating growth and production. The pronounced value of cover crops has also been demonstrated in the young orchards at the new Experiment Station site. The trees were set in 1917 and at the present time (1925) seven years later, this orchard is generally regarded as one of the best in both appearance and production for its age in Southern California. No fertilizers whatsoever have been applied and its present condition is altogether the result of winter and summer cover crops grown."

"In the bearing citrus orchard the cover crop is unquestionably of considerable value where a reasonable tonnage can be grown without competition with the trees. The data from the tests on older orchards, however, are conflicting, the probable explanation of which is competition with the trees either for nitrogen or waters."

"The orchard practice survey (see Cal. Exp. Sta. Bul. 374) brings out clearly the fact that in the bearing orchard the cover crop has a definite organic matter replacement value. Where the smallest amounts of manure were used, it was shown that the cover crop gave the most striking results, with an average increase in yield of about 20 percent. Where the largest amounts of manure were used, the least effect from the cover crop was noted in an increased yield of 6 percent. A good cover crop consisting of 12 to 15 tons of green material should furnish approximately two tons of dry matter, each of which is equivalent in fertilizer value (nitrogen and organic matter) to two tons

of ordinary manure.—It is believed that there is justification for estimating the cover crop replacement value at from three to five tons of manure."

So much for California. What does Florida have to offer as a result of citrus cover crop experimental work? In 1925 a citrus cover crop experiment was laid out at the Citrus Experiment Station at Lake Alfred. How many of you have visited the Station and seen this experiment? In brief this experiment shows that where cover crops were used tree growth and fruit production has been a great deal better than where no cover crop was used. The experiment has not progressed far enough to show the exact value of the different cover crops being used neither has it been run long enough to tell how much if any fertilizer can be dispens-

acre to a natural cover crop, one to *Crotalaria striata*, one acre to *Crotalaria striata* plus *Crotalaria striata* grown elsewhere and hauled in for mulching and one acre grown to any one of the following cover crops: cowpeas, velvet beans, beggarweed or *Crotalaria sericea*. All cooperators chose *Crotalaria sericea*. A record is to be kept of the tonnage of cover crops produced, fertilizer used, and fruit produced. The main idea in this work is to find out how valuable a cover crop is.

Referring again to the cover crop experiment at the Citrus Experiment Station at Lake Alfred it will be noted from Table 1 that *Crotalaria striata* has yielded the greatest quantity of material to turn back to the soil while Natal grass ranks second and the rotation of cover crops third in

Table I—Yield of Cover Crops Grown at Citrus Experiment Station—Lake Alfred, Fla. (Soil—Norfolk sand cleared 1923) Agronomy Department Soil Fertility Investigations.

Crop	Pounds per acre top growth—aid dried					5 Yr. Average	Percent nitrogen 8% moisture basis	Pounds of cover crop air dried (8% moisture basis)	Nitrate of soda or calcium nitrate equivalent—pounds
	1925	1926	1927	1928	1929				
<i>Crotalaria striata</i>	7656	4835	2401	4080	5750	4944	2.177	107	713
Velvet beans	2212	2526	2295	2380	1873	2257	1.998	45	300
Beggarweed	3062	2178	ure	3400	3398	2407	1.207	29	193
Cowpeas	2211	1350	1147	3400	1001	1821	1.662	30	200
Natal grass	No record	3060	4292	3400	3398	3537*	1.081	38	253
			Natal Cow- B.						
Rotation of above crops		3400	1360	2040	3703	2625*			
<i>Crotalaria</i> -mulched					3703				

*4 year average

ed with in connection with the use of cover crops.

The cover crop experiment at Lake Alfred started in a newly set grove, hence what effect cover crop growing in a full bearing grove may have on the grove is just now beginning to be answered. Therefore to get more information we have to extend the cover crop experimental work to bearing

this respect. It must be recalled that seeding costs are usually nil with Natal grass in this part of the state, while cowpeas and velvet beans have to be seeded each year. Beggarweed has failed one year out of five and looks like a failure in 1930 while *Crotalaria* has given good yields each year. Seed of *Crotalaria* and beggarweed have been planted three years

Table II—Effect of Cover Crops on Growth of Citrus Trees Agronomy Department—Soil Fertility Investigations—Lake Alfred, Florida. Citrus Experiment Station.

Cover Crop	Cross Section area sq. in.		Increase—sq. in. 1925-1930	Rank
	1925	1930		
Natal Grass	.587	13.70	13.11	2
Cowpeas	.590	13.13	12.54	4
Beggarweed	.579	13.13	12.55	3
Velvet Beans	.584	12.78	12.19	5
<i>Crotalaria striata</i>	.593	14.94	14.34	1
Clean cultivation	.633	9.55	8.91	6

groves in the citrus belt and in order to do this seven bearing groves, two on the East Coast, two on the West coast and three on the ridge have been selected by county agents, citrus specialists and district agents. In these groves the following cover cropping scheme is being tried: One

out of the five. This probably was not necessary but we were anxious to have a stand each year. Other areas at the Citrus Station seeded to *Crotalaria striata* in 1924 have given a good volunteer growth each year up to and including the 1930 season.

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Fast Freezing As A Means Of Food Preservation

By Ralph V. Grayson, General Manager, Polar Products, Inc., Atlanta, Ga.

Much has been written and said concerning the various freezing methods in existence and their action on the product that is being frozen. There is quite a difference of opinion as to what the effect of slow and fast freezing is on the cell structures of various products which are adaptable to preservation by freezing. Undoubtedly, there is a larger crystal formed by the slow freezing method. This is injurious to some foods of delicate cell structure, while on others, the effect is nil, and slow freezing can be effectively accomplished. Considering the product with a delicate cell structure which is fast frozen, you will find that the cells are not broken, the juices are intact and the fruit is normal when defrosted. In products of this nature, the importance of fast freezing cannot be too strongly emphasized.

As I see it, fast freezing has a two fold purpose. First, to preserve the product in its natural state economically and efficiently. Second, to bring about an immediate suspense of bacteriological activity towards disintegration which immediately begins upon rupture of any part of product.

One of the greatest enemies of proper food preservation is air, which is more active in the disintegration of food products than any other factor which has to be dealt with. Now, in order to eliminate this one factor, it becomes necessary to prepare the product to be frozen as rapidly as possible, and to eliminate its undue exposure to air. There are several methods by which this can be accomplished. The fact remains however, that the imminent danger of oxidation or discoloration is not removed until the product is frozen. Therefore, the faster the product is frozen, the greater the factor of safety.

There is also a factor of fermentation which is known by so many different names that one hardly recognizes it when it is seen. Many fine products have been condemned as having preservatives, essential oil and other by-products in them, when as a matter of fact, the real taint or rancidity is fermentation or oxidation that is caused from holding the product too long before freezing, and then freezing too slow. Actual tests by eminent authorities have shown

that strawberries frozen in ten to thirty gallon drums were undergoing fermentation in the center of the drum while in the cold storage room. The same thing is true of a quantity of orange and grapefruit juice which was frozen in Florida during 1928, and it is needless to say that such careless practices only tend to retard the development of a potentially great industry. The remedy for conditions of this kind is fast freezing in smaller containers.

One of the most important factors in the correct freezing of a product is to keep it in its natural state, which in juices, is in solution, and in solids. With the least possible exosmosis of juices of course where cell structures are ruptured in preparing product, there will be a normal flow of juices which will settle as gravity directs. Once settled, precipitation begins the first step towards rapid disintegration. This can be avoided by tumbling the product while freezing. This type of equipment is available for commercial freezing plants, and has proven a great asset to proper freezing of food products. By tumbling a product while freezing, the air is driven to the center of the package and thus reduces to a minimum the effect of air on the frozen product, inasmuch as all exposed parts of product are completely glazed with the frozen juices. If the product is frozen in a still position, the juices will gravitate to bottom of container and the product will float to the top in some instances projecting above the juice or syrup where the contact with air immediately sets up an oxidation which greatly detracts from the appearance of the product, and undoubtedly reacts against distribution. Tumbling of products while freezing actually causes a perfect seal by ice within the first few minutes of the freezing period which is a most desirable feature.

The shape and size of containers are of little importance insofar as preservation of product is concerned. The most important matter is to get the right kind of material for your container. A sulphite paper sheet waxed is preferable, as there is no taint to product whatsoever. Some other paper sheets will undoubtedly leave a strong undesirable taint in the product. The various merchandis-

ing organizations require certain types of packages for their respective trades.

For distribution through dairy and ice cream channels, the one-half and one pound containers are the logical sizes, inasmuch as these channels supply the family trade, there being two liberal portions in the one-half pound and four liberal portions in the one pound package. These two sizes will supply the needs of the average family.

For drug store, tea room, and restaurant trade, the individual or one-quarter pound package is the popular size.

For ice cream manufacturers and bakers, the proper size package is one, two and three gallon size of cube or cylindrical shape.

Frozen products are placed in two or three dozen lots in corrugated shipping containers as they come from the freezing machine. The cartons can be sealed with silicate of soda, or the usual gum tape. However, the gum tape must be moistened with a salt brine water when used in storage room. A temperature of from 8 to 14 degrees F. should be maintained in the storage room at all times.

Transportation of frozen products from point of origin to distribution centers can be accomplished by loading standard refrigerating cars about forty eight inches high and charging ice bunkers with crushed ice, adding twenty per cent salt and re-icing and salting at all regular re-icing stations. Some difficulties have been experienced through improper circulation of air, permitting the temperature in the top of car to rise above critical point, thus causing a partial defrosting of top layer of cartons, which is injurious if not fatal to that part of product.

A method which will overcome this difficulty is now in process of patent and will be available for the coming season.

The shipment of less than car lots to smaller cities will be effectively accomplished by means of insulated shipping containers, using dry ice as a medium of refrigeration.

Express rates are not excessive on this class of shipping, and empty containers are returned for a very small

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The Citrus Industry In Palestine

Although Palestine is a small country, its total area being about 9,000 square miles, it has at present approximately 10,000 of acres under citrus cultivation, of which 75% is in bearing, reports Trade Commissioner G. E. Luebben to the Department of Commerce. It is estimated that in addition to the present acreage now under cultivation in that country a further area of approximately 60,000 acres is considered suitable for citrus cultivation.

In 1926, 1,887,581 boxes of oranges were exported, which increased to 2,265,259 boxes in 1927, dropped to 2,202,435 boxes in 1928, and reached a low level with 1,722,078 boxes in 1929. Of this amount the United Kingdom took 82% in 1926, 73% in 1927, 78% in 1928, 76% in 1929. The shipments to Egypt, although rather large, cannot be construed in direct exports, as considerable quantities arrive by rail from Palestine and are thence reshipped to European markets.

In 1928, the first year exports statistics were available, 1951 boxes of grapefruit were exported, which reached a total of 9,071 boxes in 1929. An interesting fact in the grapefruit export is that in 1928 the United Kingdom took only 12% of the total exports and 71½% in 1929 while Germany took 28% in 1928 and only 7% in 1929; France 36% in 1928 and 3½% in 1929.

In spite of the fact that a Palestine orange is of very good quality, seedless, of good size and contains an abundance of excellently flavored juice, the prices that have been obtained on the European markets have not been generally satisfactory. This can be largely attributed to the decay of fruit in transit, which is from 10 to 25% and occasionally more. The general consensus of opinion seems to be that the low average prices are due not only to heavy decay in transit, but to the poor packing and grading as well as the shipping of green fruit during the early part of the season. Experimental work has been carried on and it is thought that the decay was due largely to rough handling in picking and packing. Both the blue contact mould and the green mould are common, although the green mould seems to do the most damage. The fruit is usually attacked at a point of injury.

Efforts are being made to improve picking, packing, grading and shipping.

Fruit that is packed during early November and December is usually very poorly colored and much fruit goes forward green. The sugar content runs fairly high early in the season, in November sugar to acid ratio is approximately 7 to 1, although the color is still green.

The lack of facilities at the port of Jaffa is deplorable. There are warehouse accommodations for approximately 50,000 cases and these houses are small, dark and poorly ventilated. Handling conditions at Jaffa are very poor. The cases of fruit are usually bumped and treated not as a highly perishable article, but as some staple commodity. These facts coupled together with the rough handling during picking, and packing operations cause the fruit to be injured and by the time it arrives in the Northern European markets after a twenty-one days trip under ordinary stowage it is natural that wastage runs from 10 to 25%.

The marketing of Palestine Citrus has been very haphazard up to the present time, but it is reported that an association of grapefruit growers are trying to improve cultivation, packing and selling facilities. Acre-

age of oranges has been planted too fast in Palestine according to a good many opinions. It has been said that in ten years' time Palestine will ship ten million boxes, and even more when present new plantings are all bearing.

The rather disastrous season of 1929-1930 has brought the shippers more in accord regarding a sales co-operative association patterned after California. There are to be local associations of planters formed during the coming season, same as our local packing houses and these associations are to be grouped into one general organization. This central organization intends to establish sales agencies in all the important markets, establish their own brands, control the export movement, organize advertising and encourage and create a standard pack as well as teach the growers modern packing methods.

Citrus from the Palestine area moves from November to April, the bulk of the fruit moving in January, February, and March. After March no shipments can be made on account of the heavy damage caused by the Mediterranean fruit fly. The following figures show the imports of oranges into Germany, the Netherlands, Norway, Sweden, and Denmark, from Palestine and the United States:

	1926		1927	1928	1929	First six months 1930
Imported into Germany	from:	Boxes	Boxes	Boxes	Boxes	Boxes
Palestine		22,304	111,678	143,419	244,995	373,690
United States		4,348	27,557	9,122	(1)	(1)
Imported into Netherlands	from:					
Palestine		500	13,569	9,406	33,306	18,496
United States		1,514	1,872	131	46,967	(1)
Imported into Norway	from:					
Palestine		---	---	150	---	---
United States		3	1,480	1,364	(1)	(1)
Imported into Sweden	from:					
Palestine		---	---	---	496	---
United States		---	---	---	(1)	(1)
Imported into Denmark	from:					
Palestine		805	5,820	20,815	26,290	(1)
United States		205	950	2	(1)	(1)
Imported in United Kingdom	from:					
Palestine		1,566,140	1,943,088	1,727,676	1,324,486	(1)
United States		233,785	604,334	148,935	(1)	(1)
Imported into Belgium	from:					
Palestine		---	3	400	(1)	(1)
United States		464	122	---	---	---

Sugarcane growers of West Florida should arrange to secure seed of Cayana 10 as the crop is being har-

vested. This variety is resistant to mosaic and to nematodes which cause root-knot.

Soil Sterilization

By George F. Weber, Associate Plant Pathologist, Florida Experiment Station.

Soil disinfection is one of the most effective ways of controlling certain plant parasites. This is particularly true where it is known that certain plants are killed or attacked by specific parasites which live in the soil. The destruction of these soil-inhabiting pathogenic organisms has resulted in the production of disease-free plants. Once the soil has been sterilized, specific precautions are necessary, however, to guard against reinfestation before the plants reach the stage for removing from the bed. Sterilized soil is most often recontaminated by using unsterilized tools, by being walked across, by running water and by wind-blown soil. Soil sterilization is an expensive operation and is usually done only for seedbeds. The following methods have been used successfully.

Steam Sterilization

This process necessitates the use of a steam boiler of 15 horse power, or greater, capacity and a rectangular galvanized iron pan large enough to cover a considerable area, yet small enough to be moved by four men. A convenient size is 6x10 feet, although the size may be made to suit the need. The pan should have sides and ends six to ten inches high with a sharp edge, so that it can be inverted and pushed down into the soil. In this position it is connected to the boiler by rubber hose so that steam from the boiler is discharged into the inverted pan at a pressure of 75 to 90 pounds per square inch. Steam should be discharged into the pan until an Irish potato of medium size buried six inches in the soil under the pan is cooked. This will require from $\frac{1}{2}$ to $\frac{3}{4}$ hour. Then remove the pan to an adjoining portion of the bed and repeat the process. If the soil contains a high percentage of organic matter, several days should elapse before seed are planted or plants set in the soil. This is the most satisfactory method of soil disinfection.

Formaldehyde Sterilization

The solution is made by diluting one gallon of commercial formaldehyde in 50 gallons of water. After being mixed the solution is ready for application. A satisfactory application can be obtained by using an ordinary garden sprinkling can.

The soil to be treated should be loosened by cultivation. The solution should be applied at the rate of one-half gallon per square foot of soil surface. Thus, a seedbed 4 feet wide

by 25 feet long consists of 100 square feet and requires 50 gallons of the solution. The application should be made slowly enough to prevent it flowing over the surface. One way to avoid this is to spade over the soil in strips as the solution is applied. After the solution is applied, tarpaulins, canvas or burlap previously submerged in the disinfectant, should be spread over the treated soil and left for 24 hours. Then covering should be removed and the soil stirred, using disinfected tools. After 10 days from the time of application of the solution, seed can be planted with little danger. This treatment will not control nematodes that cause root-knot.

Heat Sterilization

There are numerous variations in the sterilization of soil by the application of heat. The one most used consists of heating dampened soil to near the boiling point in shallow pans. This can be done in a specially constructed frame or in the oven of a kitchen stove. The principle involved is to keep the soil damp and maintain a temperature close to the boiling point for an hour.

Soil can be readily sterilized advantageously with a pressure cooker. The soil should be placed in pots or cans and kept at 15 pounds pressure for 15 minutes.

Dry soil can be baked in shallow pans over an open fire or in an oven in a much shorter time than when kept wet. This process is not recommended, since the humus of the soil is usually destroyed.

Boiling water also may be used advantageously when only a small quantity of soil must be sterilized. Small flower pots up to four inches in diameter filled with soil may be submerged in boiling water for five minutes for successful treatment. Larger pots naturally would require a relatively longer time. Boiling water poured on soil is not very satisfactory but can be used. Four or five gallons of boiling water applied to a plot of ground one by three feet will sterilize it three or more inches deep, depending on the type and compactness of the soil.

Surface burning or "firing" often has been used as a means of ridding soil of parasitic organisms and weed seed. This operation requires a large supply of wood placed on the soil to be sterilized. The burning of the wood heats the soil sufficiently to kill living

organisms. The disadvantage, however, is the loss by actual burning of the humus in the soil, making it quite unsatisfactory for a seedbed.

Chemical Disinfectants

A large number of chemicals have been applied to soil as disinfectants. The principal and more successful ones are: copper sulphate, mercury bichloride, organic mercury compounds, sulphuric acid, acetic acid, lime-sulphur, potassium permanganate, sodium cyanide, and others. These may be used for specific purposes in certain types of soil to advantage. However, in making general recommendations the preceding methods have consistently given more satisfactory results.

NATURAL ENEMIES HELP

TO CONTROL MEDITERRAN-

EAN FRUIT FLY IN HAWAII

An interesting comparison of the effectiveness of natural control of the Mediterranean fruit fly, as practiced in Hawaii for the last 16 years, and artificial methods, as practiced in Florida during 1929, may be drawn from Circular 109-C, a recent publication of the U. S. Department of Agriculture, which may be obtained free upon request.

The new publication presents a detailed study of the parasitism of the Mediterranean fly in Hawaii for the period 1922-24, when intensive studies were made by the Bureau of Entomology. In addition, tables which show the relative abundance of fruit-fly larvae in various host fruits from 1916 to 1924, and the extent of control by parasites in these fruits, are included in the report.

The study shows that the four established natural enemies imported to Hawaii from Australia and South Africa, taken together, have parasitized from 43 to 47 per cent of the fruit-fly larvae.

Widely different horticultural conditions prevail in Hawaii and Florida. In Hawaii most of the host fruits of the Mediterranean fruit fly are wild or not of commercial importance, while the reverse is true in Florida. Extensive clean-up and spray work did not seem practical in Hawaii, so natural control was tried as the next best method. It is clearly apparent that natural control would have little, if any, place in an eradication effort.

CITRUS COMMENTS

—BY—

Charles D. Kime, Orlando, Florida

This department is devoted to furthering horticultural interests of Florida. Letters of inquiry, discussion or criticism will be welcomed.

Friedrich Wohler Lays Foundation For Modern Fertilizing

Just about 106 years ago Friedrich Wohler performed an experiment that resulted in the formation of an organic compound from a combination of chemical materials. This was in 1824 and was certainly done at a time when organic life was supposed to be the only source of all organic compounds. Naturally such a discovery was very upsetting not only to the chemists of that day and the theories they held, but it was even more so to the attitude of the layman of that time, since it seemed to detract somewhat from the divinity of creation. The conclusiveness of the work is the only thing that prevented disbelief from gaining great headway.

In 1828 Wohler published a short paper giving the results of the experiment that created an organic compound chemically without the intervention of some living process. In 1824 he produced oxalic acid and "a white crystalline substance" which last proved to be identical with urea. This was done by combining cyanogen and aqueous ammonia. Later he produced urea by the action of ammonium chloride on silver cyanate and by the action of ammonia on lead cyanate. The importance of this simple experiment lies in the broadening of the future which such a discovery created.

Our interest in the discovery is because of its being urea. Just about 100 years after its discovery we are beginning its use along with many other materials produced in a chemical manner in grove fertilizing.

Testing Soils For Phosphorus

A simple test for the available soil phosphorus is now on the market and can be obtained for use by anyone interested. The use of tests for determining the amount of plant food in the soil was quite the thing at one time. Later it was found to depend as much on the condition of the soil (physical condition) as on the amount of material contained. That is plant use of materials depends on

COMMENTS OF THE MONTH

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the physical conditions surrounding the plant. There may be abundant food material present but the plant may also be unable to take it up from the soil because of the unfavorable conditions surrounding it or because of the combination in which the material may be found with other materials. This condition still prevails. A test for available phosphorus therefore does not mean that we would know when or in what quantity to supply more phosphorus without first finding out many things about the crop.

The test is of great value, however, for use in working out results affecting maturity of the fruit, improving fruit quality and in improving bearing capacity. It is along this line that we are glad to have this addition to citrus work in fertilizing groves.

Dictionary of Fertilizer Materials

Hand books of fertilizer materials have often been issued in a form very convenient for reference by interested growers or others needing to keep up on grove fertilizing work or truck crops.

Each issue that has come to our attention has been more complete and carried a little more interesting detail than former issues. Such a handbook is something that each grower can get by requesting it from the firm publishing it.

Such booklets are especially interesting when used in connection with a book on chemistry as they point

out many of the whys of fertilizing. But a knowledge of chemistry is not necessary for one to get a wealth of valuable pointers on fertilizer materials and related materials from the booklets which are always written in language free from confusing chemical terms.

Turning Sawdust to Sugar

A source of cattle food for Florida is available as soon as the process is improved, in the form of sugar from sawdust. According to "Chemistry and You," Dr. Friederich Bergius has converted sawdust into digestible carbohydrates (ask your dairyman), through leaching the sawdust with concentrated hydrochloric acid and evaporating the product, after removing the acid from the syrupy mixture. The resulting sugars on suitable drying make an excellent cattle feed. They can be further refined for human consumption. Another source of cattle food would be of importance to the state.

Trend in Nitrogen Production Interesting to Fruit Grower

Both directly and indirectly the farmer and fruit grower are benefited from the development of nitrogen fixation from the air. Before the processes were commercialized the grower was having a hard time purchasing fertilizers at a reasonable cost. Materials such as bone, tankage, cottonseed, etc., were being used in cattle feeds. Other nitrogen sources were in demand for industrial use. The unit cost of nitrogen was high. Synthetic fixation was stimulated, not for the use of the farmer but to make the countries evolving the process independent of foreign sources of nitrogen. In addition to this desire to be independent in time of war, nitrogen combinations were needed in a huge number of industrial processes; examples being explosives, dyestuffs, rayon, etc. Here again the farmer did not figure in the deal. All of these considerations were of more importance than the mere fact that the farmer might need cheaper fertilizers. The farmer and grower profit as an after thought, not as a direct result. Just now the situation is some-

what reversed. The farmer and grower is proving to be the most important outlet for the materials that are being produced in excess of the country's consumptive possibilities.

New Spray Materials of Interest

Paradichlorobenzol finds a new use as a spray for peach tree limbs attacked by borers as well as for borers at the ground line, according to the "Florist Review". The material is dissolved in a suitable carrier and then sprayed on the limbs affected. The carrier is of such a nature as to prevent the loss of the gas given off by the paradichlorobenzol outward as fast as it is given off in the inside or next to the limb of the tree. This spray has resulted in unexpectedly good results for borers and some other insects that are very hard to kill by the usual spray methods.

Potash

Using a fertilizing system to prevent insect attack is not new tho its effectiveness is often questioned. Now comes to light a recommendation for use of potash to prevent mildew on roses. The idea seems to be based on building up resistance to disease from the inside. It is actually very effective with citrus under normal grove practice.

Glue as An Insecticide

Under difficult circumstances glue seems to offer great insect control possibilities. The Ohio State University at Columbus has demonstrated its use for red spider, on evergreens. It can also be used on many tender plants both in and out of the greenhouse, such as carnations, snapdragons, etc. This means it would be a safe material for some of our ornamentals in Florida.

Glue acts by cementing the insect to the foliage, like flies on fly-paper, causing slow death to the adult, and in addition largely preventing eggs from hatching. It proves to be non-injurious to foliage, cracking off when dry, leaving the leaf underneath entirely unhurt. The Department recommended 1 pound of glue dissolved in five gallons of hot water. After cooling, the plant is sprayed all over so as to wet the insects and all parts of the plant. After applying, if the material is again softened up by respraying with water a day or so later, its effectiveness is increased, because of the killing of insects missed on the first spraying.

"Exploring For Plants"

The above is the title of a new book written by Florida's best friend, Dr. David Fairchild. It is a book full of interesting and valuable information. The list of plants and fruits alone are well worth the price of the

THE CITRUS INDUSTRY

volume. In addition Dr. Fairchild has woven into the story so many intimate details that we are left with a vivid picture of the life and fruits of many countries of the warmer parts of the world.

Can You Pronounce?

This list of plant names appearing in "The Citrus Industry" from time to time will cover all of the more common ornamentals and if cut out and saved will give the reader a fairly complete dictionary for home use.

Ada—(a da)

Adansonia—(ad-an-so ni-a)

Adiantifolia—(ad-i-an-ti-fo li-a)

Adiantum—(ad-i-an tum)

Adlumia—(ad-lo mi-a)

Adnate—(ad nat)

Aerial—(a-e ri-al)

Aerides—(a-er i-dez)

Aesculus—(es ku-lus)

Aethiopica—(e-thi-o pi-ka)

Laurus—(la rus)

Laurustinus—(la-rus-ti nus)

Lavandula—(la-van du-la)

Lavender—(lav en-der)

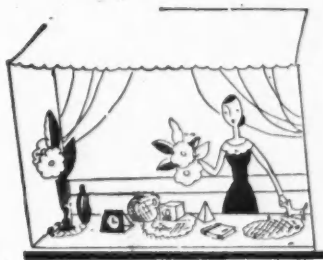
Lawsonianum—(la-so-ni-a num)

Leguminous—(le-gu mi-nus)

Leichtlini—(likt lin-i)

Lemoinei—(lem-oi ne-i)

(Continued on page 26.)



A Department Store of metropolitan completeness—A store of Florida—by Florida—for Florida.

A Store where you may come in your own mood—where you may rush in for a Christmas Gift or one of those "one of a kind" dresses at just \$17.50 (all Tampa is talking about them)—a store where you may shop amid the Luxury of your own home—where you may come languid and willing to linger amid the beautiful things from every corner of the globe. Christmas is near and you'll find that we are well aware of it—and gloriously prepared. We most cordially invite our friends in the vicinity of Tampa to the store—we won't urge you to buy.

If you are unable to find what you want in your own community, come to Rutland's (Tampa) or write to us—we'll be delighted to attend to your demands promptly.

RUTLAND'S

507-11 Franklin

Tampa

The Citrus Industry

with which is merged The Citrus Leaf

Exclusive publication of the Citrus Growers and Shippers

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Telephone _____ 4519

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NEW YORK OFFICE
118 East 28th Street
Edwin F. Ripley, Manager

CHICAGO REPRESENTATIVE:
Joe Esler, 5434 Glenwood Avenue
Telephone—Long Beach 3429

ALL RESTRICTIONS OFF

Saturday November 15, marks the removal of the last of the restrictions governing the shipment of fruits and vegetables from Florida.

This means that the Mediterranean fruit fly is definitely and permanently whipped—and that the federal authorities are convinced of that fact—as most Floridians have long been convinced.

Removal of the final restrictions gives Florida citrus its proper "place in the sun." From now on, we may ship where, when and as we choose. It is now up to our own growers and shippers to determine whether we shall reap the full benefit of the removal of the ban. Shipment of good fruit only will bring us our reward.

ORANGE JUICE DIRECT TO CONSUMER

Projects fraught with great potential possibilities for Florida citrus growers developed during the past month with the announcement by the Florida Citrus Exchange of the signing of contracts with the National Juice Corporation and with Tom Huston Frozen Foods, Inc., for the handling of millions of boxes of juice grade Florida oranges.

Both contracts run for a period of many years, and officers of the Exchange see in these added sources of distribution the possibility of eliminating entirely from the fresh fruit trade the juice grade fruit which heretofore has been placed upon the market in direct competition with the higher grades, and which has tended to lower the price on oranges of all grades.

These new sources of distribution are in addition to that of the recently organized Exchange Juice Company, which will distribute Florida orange juice in carload lots to the wholesale trade. It is expected that the three projects will absorb all of the Exchange supply of juice grade oranges, as the grapefruit canning plants are expected to absorb all of the canners grade of grapefruit.

The Citrus Industry believes that these various projects afford a field for wonderful devel-

opment of the demand for Florida citrus juices. While it is not to be expected that the present season will witness the fullest development of this plan to cater to the retail trade, it is to be expected that a good start will be made toward the establishment of the several projects upon a firm foundation which in the succeeding years will add greatly to the prosperity of Florida citrus growers. The greatest danger to the projects, as The Citrus Industry sees it, may be the tendency on the part of some growers and others to expect too much too soon. If given time for natural development along rational lines, we believe that the introduction of these new elements of distribution will serve to greatly stabilize the market and enhance the value of Florida citrus groves.

SHOULD STRENGTHEN GREEN FRUIT LAW

The present season has demonstrated beyond doubt that the so called "Florida Green Fruit Law" needs strengthening. When the present law was passed, leading citrus factors believed that the law embodied every essential needed to check the shipment of unfit fruit. In ordinary seasons, this is probably true. But there are "off" seasons, when it is apparent that the present law is inadequate. The present season is one of them.

At the beginning of the present shipping season, inspectors were stationed at every packing house to see that the law was strictly obeyed. So far as acid content is concerned, we are assured that the law was enforced. Not a shipment, it is contended, was permitted to go out which did not meet the required test. Yet it is unquestionably true that much fruit unfit for consumption did find its way onto Northern markets—fruit which was dry as a chip and wholly unfit to eat. The acid test was O. K. but the juice and flavor were lacking.

Florida grapefruit is still suffering from the effect of those early shipments, and the price has been hammered down by the suspicion which still lurks in the minds of consumers that present shipments may still be unfit to eat, notwithstanding the fact that fruit now going to market is of high quality and excellent flavor.

To prevent a repetition of this experience next year and the year after next, we must have some new and effective regulations to control early shipments. This, it seems to us, is a field in which the Florida Citrus Growers Clearing House Association can effectively function in the interest of the growers and shippers who have the best interests of the industry at heart. The Clearing House Association is the one great factor representing ALL growers and shippers, and through its good offices, we believe some manner of legislation may be devised which will protect the industry from certainty of repeated loss from green fruit shipments if the present law is not amplified and strengthened.

But, greatly as Florida has suffered from those unwise early shipments it must not be supposed that the evil is peculiar to Florida alone. The following taken from Texas Citriculture, a magazine devoted to the citrus industry of our Western neighbor, is conclusive evidence that Texas is suffering quite as much as Florida

from the effects of the early shipment of unfit fruit:

"The final test of all the things required to grow a crop of fruit is the willing grunt of satisfaction expressed by the consumer who has eaten the fruit.

"Texas citrus is unsurpassed. It can be of such delicate and delicious flavor that an expressed "satisfaction-grunt" will invariably come from the consumer. It's this grunt that producers are after, for they cannot deny that price, the higher the better, is the most desirable goal, and that nothing but a satisfied consumer will give a high price.

"What is needed is more grunts. They're scarce this year as the marketing season begins its way, and this missing expression of satisfaction is not without reason. Our old friend "Early Markets" is again being courted with startling and needless failure—just as he was last season and the season before.

"It is needless to say 'don't ship until it will pass the palatability test,' it is needless to point out that a very serious damage is the invariable result of fruit not as well matured as it should be going on the market. Persuade all you may, plead all you may, there will always be someone who starts things off just as soon as the fruit season opens, to be followed by others. Many shippers who have this year not wanted to market early fruit, were confronted with 'do it or I'll get someone else.'

"It has been proven time after time that the industry cannot be left to its own motives. It cannot care for itself. Many of those who compose it know not the difference, or care not the difference, between a green fruit and one that produces those grunts of satisfaction upon which the highest price depends. As the situation now stands it is squarely up to the grower and shipper to see that it is remedied.

"A number of things may be considered as composite parts to a Texas citrus industry that will live and prosper. All must end in satisfying the consumer."

Human nature is much the same the world over, and it is apparent that in the citrus field, it matters not whether in Florida or Texas or California, human nature must be controlled by adequate and strictly enforced laws if the greatest good of the greatest number in the industry is to be conserved.

A GOOD TIME TO INVEST

The Citrus Industry has always studiously avoided anything which might savor even remotely of promotion propaganda. It has never permitted its columns to be used for publicity purposes by those whose interest might lie in the

direction of the promotion of development projects, even though those projects might apparently be founded upon sound principles of business. The Citrus Industry still maintains that attitude.

However, we believe that the time is now here when we may say with the utmost conviction that now is a good time to invest in Florida citrus properties of proven worth. With the Mediterranean fly definitely and permanently whipped, with the many new factors entering into the citrus industry of the state, The Citrus Industry believes that citrus groves of known bearing capacity, well located and in good state of cultivation, are cheaper today than they will be next year, or five years, or ten years hence.

With canned grapefruit just coming into its own through the recognition of national canning concerns and the increasing demand of consumers, with canned and frozen orange juice promising to vie with canned grapefruit in the public favor, the consumption of Florida citrus fruits seems destined to command an increasingly prominent place as an essential food product in the households of America, to say nothing of the increasing foreign demand for Florida citrus products.

This increasing demand will call for an increased supply, to be met only by increased production. Increased production calls for increased acreage of grove properties, with the five or six years necessary to bring such properties into bearing. In the meantime, grove properties now bearing will be in great demand at increasingly good prices.

It would seem to The Citrus Industry, also, that now is a good time for nurserymen to prepare to meet the demand for nursery stock of the better kind, which is certain to follow upon the heels of increased demand for grove properties.

The Citrus Industry does not look for the millennium for citrus growers to arrive this year, possibly not next year; but it does look for a constantly improving condition in the industry with ultimate stabilization of prices and a constantly increasing demand for and enhanced value of citrus groves.

A national clearing house for citrus fruits appears to be in the offing. And by national, we do no mean a clearing house controlled by a single element in any one citrus producing state.

It is false economy to deny your trees the plant food essential to their well-being or to be niggardly in the use of sprays and dusts essential to the production of fruit of fine appearance.

There are a score of reasons why every grower should endeavor to grow quality fruit of good appearance, but one is sufficient—the higher price to be obtained.

Yes, the fruit of finest appearance is again bringing the highest price on the markets.

When in doubt, ask your county agent. He knows.

IMPRESSIONS

By The Impressionist

Harry C. Plano, the well known manager of the Kissimmee Citrus Growers Assn. of the Exchange, went out to California this past summer, and spent considerable time with his brother-in-law who is an orange grower there. Harry picked up a lot of information of value, but says his chief impression is of having nearly frozen to death most nights.

A city boy who made good in the country, this Plano person. And if you don't believe the Kissimmee growers appreciate him, and what he has done for their association, why just do as we once did and announce you've come to offer him a better job elsewhere. We happened in at an association meeting at Kissimmee a few years back; and just to make the conversation interesting injected a suspicion that another locality wanted to bid for Harry's services. Two gentlemen took us out around the corner of the house. One wanted to argue and remonstrate and the other wanted to fight. Then, when we explained, we simply were being funny, he said we had a heluva idea of fun. Yes sir, Harry Plano is one of the liveliest crackers who—ever came out of Chicago.

One thing about these Chicagoans in Florida. If you get 'em from close enough to the Yards they don't mind the smell of guavas one bit.

Lawrence Gentile holding forth impressively upon the desirability of federal inspection certificates upon citrus shipments. As he sees it, any sort of inspection costs money and the federal certificate is worth more, because, he says, it is valid evidence in court and elsewhere if the receiver becomes too finicky.

C. W. Ensminger, well known grower of Longwood in Seminole County and former representative in the Legislature from that county, makes a point in connection with the taxation-reduction problem which impresses us as difficult to sidestep. State budget totals, he cites, have risen from fourteen millions in 1923 to forty-two millions; and, besides, the special state taxes are being collected by special and expensive collec-

tion machinery instead of through the regular tax collection channels of the counties. This tax-reduction seems to get right back to the old copy book axiom, "Spend less, save more."

George Malone, well known Mount Dora figure, as the new head of the Carlton properties at Lake Jim is

evidencing faith in the citrus situation by spending something like sixty thousand dollars recently in improvements and enlargements.

Harold Stevens, Uncle Sam's plant expert at the Orlando experiment station is, we firmly believe, possessed of the power of making himself in-

(Continued on page 19)

The New and Patented IACO Process Offers Benefits to all Citrus Interests

Science and Invention produces the IACO Process of Cleaning, Polishing and Preserving Citrus fruits against molds at a low price, within the reach of all Citrus fruit packers and growers.

Because of its low price and simplicity of operation, the IACO process bestows its benefits upon all concerned with the production and marketing of citrus fruits.

Cleaner fruit and polished with a glowing natural luster increases Demand by a more inviting product.

Increase of Grade affords packer and grower a larger income for the same raw product.

Higher returns gratify both packer and producer.

Low cost, one-third that of other processes, is gladly invested because of the small outlay in comparison to the larger returns. The proportion of cost to returns is so low that the chance of not making a 100% profit is practically eliminated.

We appreciate the opportunity to explain details of the IACO process to packer or grower.



Jacksonville, Fla.
208 St. James Bldg.

CITRUS COMPOUND CORPORATION

Patent Owners and Distributors
of the "IACO" Process
for Cleaning, Polishing and Protecting Citrus Fruits

Winter Haven, Fla.

BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc.



Edited by The Growers Service Department

VOLUME 4.—NO. 12

ORLANDO, FLORIDA, NOVEMBER, 1930

PAGE 1

CREDITING CITRUS FOR FLORIDA'S IMPROVEMENT

Florida Times-Union

"Giving out an interview on the citrus crop situation and prospects, R. B. Woolfolk, of Orlando, vice president of the American Fruit Growers, Inc., has recently congratulated the people of Florida upon the State's present position and business outlook. Well known as conservative in his utterances and informed regarding the things of which he talks Mr. Woolfolk's presentation of facts and probabilities is interesting and important. He told of statistics studied lately, and remarked that Florida now stands well up with the best of the States of the country in business conditions.

"The citrus fruit industry Mr. Woolfolk declares, is one of Florida's major activities, and is responsible for the uplift that is being felt. He tells, among other things, that during the past summer not less than \$1,500,000 have been expended in the citrus areas modernizing and equipping packing houses with the latest machinery, this enabling the highest efficiency in handling the crop. That a number of new packing plants have been established is mentioned.

"The latest Federal crop estimate shows an excellent citrus crop on the trees, according to Mr. Woolfolk, but it lacks much of being the largest crop ever produced in Florida, although this was predicted some time ago. As a matter of fact the Federal estimate is several million boxes below the figures some time ago discussed on the streets. The Florida Citrus Growers Clearing House Association's crop estimate is slightly below the Federal figures. But it is found from surveys by the United States Department of Agriculture, the Clearing House and individual shippers, that the present crop is of the best quality ever produced in the State. This applies to oranges and grapefruit. Undoubtedly the quality of the present crop is far superior to

NEW POLK COUNTY HOUSE JOINS BLUE GOOSE RANKS

Highland Growers Inc. at Highland City, Polk county, is the newest addition to the Blue Goose ranks among Florida citrus packing houses.

This is a brand new packing house, owned entirely by citrus growers, just completed and opened for business. It is modern in every particular, and promises to be highly efficient in operation.

W. M. Hampton, the well known Polk county grower, is president; and management of the house will be in the hands of George W. Frellson, an experienced citrus packer, aided by a carefully selected personnel.

Sending crops from his properties near Winter Haven to market to be sold through the national sales organization of the American Fruit Growers Inc. for the past several years, Mr. Hampton is thoroughly familiar with, and a convert to, AFG selling methods. His Winter Haven fruit has been packed by Winter Haven Growers Inc., which sells through the American Fruit Growers Inc.

Highland City is located upon the main highway just about midway between Lakeland and Bartow. In addition to other close-by citrus acreage, it is adjacent to the large citrus developments in the Lakeland Highlands section, amounting to something like five thousand acres of groves in the hands of numerous owners.

The addition of this new Highland City packing house to the Blue Goose ranks, now makes a total of thirty-eight Florida citrus packing houses, the production of which goes to market to be sold by the American Fruit Growers Inc.

that of the past two years, he says.

"All of this is most encouraging. Florida is expecting a very large influx of visitors and winter residents during the Winter. New industries are being reported as entering the State at various points. The establishment of plants to freeze and ship cit-

(Continued on page 2)

SUPERB QUALITY OF CROP IS BIG FLORIDA ASSET

By C. N. Williams, Salesmanager

The quality of the present crop, both oranges and grapefruit, is unquestionably one of Florida's strongest assets in marketing this season. Fruit arriving in the markets quite early was giving excellent satisfaction, with indications that the public's appreciation of the eating quality of Florida oranges and grapefruit will be a most substantial aid to distribution through the season.

Due to light supplies of Valencia oranges from California there has been to date a surprisingly wide distribution of Florida oranges. The excellent quality of the Florida oranges should result in holding many markets a little later, in the face of early arriving navel oranges during the latter part of this month.

Florida grapefruit, too, has had unusually widespread distribution for the time of the year, indicating apparently a very widespread consuming demand for grapefruit.

As is wholly normal for the earlier part of the shipping season, sizes have played a big part in determining market prices, in both oranges and grapefruit. Small size fruit has been discriminated against, as is almost invariably the case in the October and November markets. However, the average prices obtained for the more desirable sizes generally have been quite satisfactory. As this is written, it is yet a little too early for the markets to have settled into their stride; but there are many indications that with Florida shipments going forward in an orderly manner the auction and private sale markets are due to net the growers generally satisfactory returns on the sizeable crop.

The elections are over, which ordinarily stimulates a revival of business and employment; and the extraordinary steps being taken by the country's business leaders to generally increase employment are show-

(Continued on page 2)

BLUE GOOSE NEWS

OFFICIAL publication of the American Fruit Growers Inc., Growers Service Department, published the first of each month in the interest of the citrus growers of the state of Florida.

EDITORIAL ROOMS
Sixth Floor, State Bank Bldg.
ORLANDO, FLORIDA



THE BLUE GOOSE NEWS

To some of you who more or less regularly pause to read these pages it may not have occurred that The Blue Goose News is advertising, a part of the advertising program of the American Fruit Growers Inc., just as is that advertisement you read the other day in the Saturday Evening Post.

Originally The Blue Goose News, as issued by the Florida Division of the American Fruit Growers Inc. was a small separate publication of four pages, mailed each month to its packing houses, employees and interested growers. As its circulation grew, with requests of others to be placed upon the mailing list, it became more economical to purchase four pages of advertising in this publication every month and therein insert the copy for The Blue Goose News.

The same form and physical appearance, however, was preserved, and the use of the abbreviation "adv" at the bottom of each page identifies its contents as advertising, and thus distinguishes it from the component parts of this publication in which it appears.

That relieves the publication of responsibility, other than its normal responsibility for the general run of advertising it may carry, for whatever may appear in the pages of The Blue Goose News. Similarly it relieves the American Fruit Growers Inc. of responsibility for whatever may appear in pages other than the four pages it buys and pays for.

The Blue Goose News as issued by the Florida Division of the American Fruit Growers Inc. is not the one and only Blue Goose News. Other shipping divisions of the organization may, and do, avail themselves of a similar method of keeping employees and interested growers posted upon the organization's activities, some by direct mail, and some by the use of paid publication advertising space.

The American Fruit Growers Inc. as an organization believes firmly in advertising. Its business has been built upon the careful and effective use of advertising, combined with modern merchandising and expert salesmanship.

It has a message of value to consumers it puts that message into print and places it before the consumers in a manner felt to be most effective. If it has a message for producers or others, it follows the same policy. But, always and invariably, the approach is by accepted advertising methods, and through ordinary advertising channels.

It is the business of the American Fruit Growers Inc. to market fresh fruits and vegetables. This it does to the best of its ability, steadfastly resisting all temptations to divert part of its energies into other channels.

It makes free use of advertising, believing that advertising is a force of great utility in modern business; but the American Fruit Growers Inc., nor its officers, nor executives, do not directly nor indirectly engage in the publishing business; and have no financial or other interest in any publication of any nature.

There is no need to apologize for The Blue Goose News; and no intention of doing so. Advertising these days needs no apology, and The Blue Goose News is outright advertising, not "propaganda."

CREDITING CITRUS FOR FLORIDA'S IMPROVEMENT (Continued from Page 1)

rus fruit juices is something that lately has added to the expectancy of those interested in the citrus industry. And of course this and other new enterprises will mean more business for the State and greater growth and prosperity."

SUPERB QUALITY OF CROP IS BIG FLORIDA ASSET (Continued from Page 1)

ing signs of early results.

Given the self-evident consumer interest, continuing increase in em-

ployment with consequent increasing buying power should enable the country to absorb our fruit in large quantities, for the quality is there, and whatever eats so well will sell largely.

NEW FREIGHT SCHEDULES SPEED FRUIT NORTHWARD

Fourth morning delivery of Florida fruit upon the New York piers is now an accomplished fact. The new fast freight schedules inaugurated by the railroads this season for the first time are working out well in practice, according to J. R. Crenshaw, traffic manager of the Florida Division of the American Fruit Growers Inc.

Careful tabulations in Mr. Crenshaw's office reveal that to the time this is written the rail lines are showing remarkable ability to maintain the new scheduled time, which saves a whole day in transit upon Florida fruits and vegetables from the fastest time previously scheduled in the history of Florida's fruit and vegetable movement.

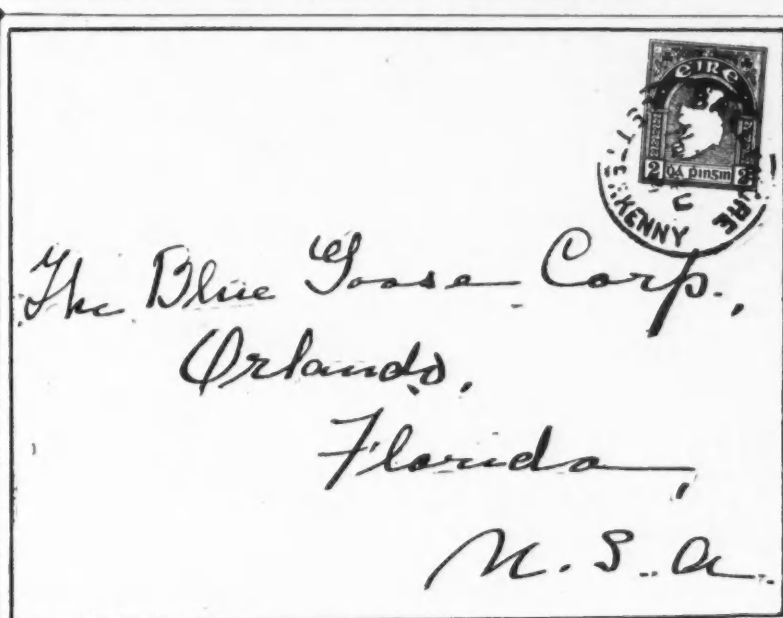
Not always in previous history have the transportation companies been able to maintain the scheduled time upon all citrus shipments, even with the former slower schedules. Therefore the to date demonstrated performance of the new and faster schedules is being cited by some as an indication that the carriers handling the Florida fruit and vegetable movement are alive to its importance, and are lending their best efforts now to placing Florida grown fruits and vegetables in the hands of northern consumers with the least possible loss of time in transit.

JOE L. DE VINNEY IS CELERY SALESMANAGER

W. M. Scott, vegetable manager of the Florida Division of the American Fruit Growers Inc. announces the appointment of Joe L. De Vinney as celery salesman, with office at Sanford.

Mr. De Vinney is a thoroughly experienced vegetable man; and comes to the position well equipped to render effective service to the celery growers of the Sanford district.

The celery operations of the American Fruit Growers Inc. in the Sanford celery delta are well established over a period of years; and constitute an important contribution to the prosperity of that section.



"Everybody knows Blue Goose," is in this case illustrated by letter received at Orlando in the envelope reproduced above. It came from a lady at Marble Hill, Ballymore, County Donegal, Ireland, who is interested in an assured regular supply of Blue Goose grapefruit.

Baggs, W. H.

WILLIAM H. BAGGS IS FLORIDA DIVISION VISITOR

William H. Baggs, Pittsburgh, general manager of the national organization of the American Fruit Growers Inc. recently arrived in Orlando; and has been engaged upon an inspection of the properties and operations of the American Fruit Growers Inc. in Florida.

Despite the tremendous pressure of his duties as the active directing head of the far-flung operations of the American Fruit Growers Inc. in all parts of the United States, and with many selling activities abroad, Mr. Baggs, who long has been a most outstanding figure in the produce world, finds time to visit and personally inspect every phase of the organization's operations.

Most amazing to many of his associates and employees is his memory for places and things, as well as for the details of intricate operations. This is most evident when inspecting some operation with which he has not personally been in touch with for some time.

Mr. Baggs possesses a very large number of acquaintances and friends

in Florida; and evidently enjoys those occasions when he finds time to revisit Florida meet with them.

LEE COUNTY GROWERS TO USE AFG SERVICE

Lee County Vegetable Growers Inc. is the name of a new and strong organization of vegetable producers in the Fort Myers section, which will market through the sales outlets of the American Fruit Growers Inc.

Composed of leading vegetable growers of the vicinity, Lee County Vegetable Growers Inc. controls a large acreage from which several hundred cars of tomatoes, peppers and miscellaneous vegetables should go forward during the season.

John E. Morris is president. Other directors are H. W. Pearce, Dr. T. A. Gresham, Clinton Bolick and Paul Hayman. Secretary Blount reports an excellent outlook for a prosperous season.

HUBER, 13TH MEMBER OF THE PRODUCE ALLIANCE, SEES LUCK

New York, Oct. 17.—Notwithstanding the fact that his grandparents were superstitious, Howard L. Huber,

of the American Fruit Growers, says that he has no superstition, particularly about the number 13. In fact, Mr. Huber thinks 13 is lucky. At the last meeting of the Produce Alliance, Inc., Mr. Huber, representing the American Fruit Growers, was elected a member of that organization. He was the 13th member elected, which he looks upon, as do the other members, as a lucky omen.

The Produce Alliance, as now organized, is made up of 13 of the strongest and most substantial houses here, representing a combined capital and financial worth of several millions of dollars. They have joined to improve conditions in the trade, especially in regard to credit matters, and have already accomplished a good deal.—The Produce News.

The Marietta (Ohio) Truck Growers Cooperative Association has used nothing but AFG selling service in the markets of the country continuously for more than twenty years.

As sales agent in the markets of the world the American Fruit Growers Inc. serves individual growers, firms, commercial shippers and cooperative associations.

Adding--
the **38th**
Florida Citrus
Packing
House

selling in the markets through the great national sales
organization of the American Fruit Growers Inc.

Highland Growers Inc.
Highland City, Florida

in the great Polk County
citrus producing area
Opened October 30

American Fruit Growers Inc.

Orlando - - Florida

UNIFORMLY



THE BEST

IMPRESSIONS

(Continued from page 14.)

visible upon occasion. Standing talking with Charley Kime and the Impressionist in front of a unit of one of the new lend-proof bank chains, he went inside to get a check cashed. We asked him to hurry back as it was just lunch time; but—as far as we know, he hasn't come out yet, unless he drew his cloak of invisibility about him.

And we certainly waited long enough.

Speaking of governmental ginks reminds us that H. A. Marks, Uncle Sam's citrus crop statistician, is recovering from a serious operation which he recently underwent in an Orlando hospital. That will be good news to many, for the very sincere and painstaking effort which he has evidenced in trying to forecast the citrus crop yields has made him many friends among the better posted growers and shippers.

Glad to hear that Seth Walker now will get his orange juice produced and marketed by Lat Maxcy's Florida Fruit Cannery Inc., under the able management of Paul Stanton at Frostproof. Seth Walker has put in a good many years hard work in the laboratory in research on citrus by-products and deserves a measure of success. And when two hardshells like Lat Maxcy and Paul Stanton take it up, it rather argues that Seth at last has produced something of unusual merit.

"Dr. Phillips, Florida." Not what you'd likely think. Look it up in the railroad guides. It is the name of the railroad station down in Orange county, southwest of Orlando, where Dr. P. Phillips' new, big packing house is located. "The world's largest citrus packing house." But no Californian would believe it.

Joseph Trombetta, again in the citrus deal with headquarters at Orlando, fitting right back again into the Orlando citrus scenery after some years of absence. These same years seem to be sitting lightly upon the former head of the Schrader company and, later, the Standard Growers Exchange.

And J. R. Hudson, for years a well known Orlando citrus broker, now blossoming out as a packer and shipper as the Hudson Distributing Co., Orlando.

Seems to us that more new citrus shipping concerns are making their appearance in Florida this season than in any previous one we can recall, though the bankruptcy in New York City of the well known firm of Olivett Bros. removed one of the oldest and best known citrus factors of the Palmetto-Bradenton section.

Talk in the northern trade papers of a "giant merger of Florida and California citrus" is more than interesting. Color is lent this talk by the

fact that all cooperatives are understood to sign agreements that when, as and if the Federal Farm Board forms a national selling agency for their particular products they will turn their production over to such agency for handling. It is reported that such agreements are stipulated before funds are made available from this source to any cooperative. Some possibly have found further color in the recent transfer of the Florida Citrus Exchange account in New York from the auction concern (Continued on page 26.)



You Can Depend On EMULSO

Either in the old familiar liquid form or the newer concentrated jelly (Emulso Concentrate) Emulso can be relied upon to effectively and safely clean up scale and white fly.

No extravagant claims were ever made for Emulso. All recommendations are conservative and based on average conditions. Under certain conditions, Emulso will do much more than is claimed for it, but your pest control program should not be based on unusual results one or two times. It takes several seasons to prove the true value of any insecticide, especially oil sprays.

NIAGARA SPRAYER & CHEMICAL CO. INC.,
Jacksonville, Florida.

"Please Say You Saw It In The Citrus Industry"

Florida Grapefruit and Juice Canning Plants

Much interest is being manifested in Florida in the rapidly growing canning industry, particularly as it affects Florida's leading industry — citrus fruits. Many plants for the canning of grapefruit were in operation last season and more than a million boxes of grapefruit went into this department of the trade. This year many new plants have been erected, old plants have been enlarged, new equipment has been installed and active steps have been taken all along the line for the expansion of the canning industry. It is estimated that more than two and one-half million boxes of canning grade grapefruit will be consumed by the canning plants this season, thus eliminating this grade from competition with the fancy grades in the markets for fresh fruit.

A recent survey of the situation has developed that approximately fifty canning plants will operate this year on the canning of grapefruit and the still newer industry of extracting, freezing and canning orange juice for delivery to the trade in handy packages ready for consumption. According to this survey, the following plants are now or will be in operation in the state before the close of the canning season:

Florida Packing Corporation, Chas. J. Davis, Jr., Jacksonville, Florida.

S. S. Goffin, 609 E. 1st St., Jacksonville, Florida.

Shaver Brothers, Inc., Jacksonville, Florida, Tampa, Florida.

East Coast Preserving Company, Jacksonville, Florida.

Brooks, Hirth Company, Jacksonville, Florida.

L. P. Maggioni & Co., St. Augustine, Florida.

Orlando Canning Company, Orlando, Florida.

Dr. P. Phillips, Orlando, Florida.
Vacuum Process Co., Orlando, Florida.

Southern Fruit Distributors, Winter Park, Florida.

F & M Packing Company, Brooksville, Florida.

Rich Brothers Packing Co., Eustis, Florida.

Cocoa Canning Co., % Parks & Van Nest, Cocoa, Florida.

Indian River Canning Co., Fort Pierce, Florida.

Polk Company, Haines City, Florida.
Fort Myers, Florida.

Holley Hill Fruit Products, % Frank Crisp, Davenport, Florida.

Spanish American Canning Co., Auburndale, Florida.

Floridagold Citrus Corporation, Winter Haven, Florida. Plants: Lake Alfred, Fla. Eagle Lake, Florida. Dundee, Florida.

Bordo Packing Co., Winter Haven, Florida.

Roberts Brothers Company, Winter Haven, Florida.

Southland Citrus Fruit Co., Lakeland, Florida.

Florida Citrus Products Corp., Lakeland, Florida.

Lakeland Highlands Canning Co., Highland City, Florida.

W. J. Howey & Co., Howey, Fla.

Hills Brothers Company, Clearwater, Florida. Bartow, Florida. Lake Wales, Florida. Avon Park, Florida.

Seoville Canning Company, Tampa, Florida.

Florida Fruit Cannery Inc., Frostproof, Florida.

H. C. Sullivan, Frostproof, Florida.
DeSoto Canning Company, Arcadia, Florida.

West Coast Fruit Co., Clearwater, Florida.

Dilpako Packing & Canning Co., Clearwater, Florida.

Tugwell & Wiseman, Inc., Tarpon Springs, Florida.

Collier Canning Co., Deep Lake, Florida.

Florida Grapefruit Canning Co., Bradenton, Florida.

Kingsway Products Co., Tampa, Florida.

Tampa Union Terminal, Tampa, Florida.

Whitefield Citrus Prod. Corp. of Florida.

Mr. Dallas J. Simmons, Bradenton, Florida.

Dixie Packing Corporation, "California Packing Corporation", Tampa, Florida.

West Coast Preserving Co., Bradenton, Florida.

(Continued on Page 25)

Chaco FERTILIZER



LOOKING AHEAD

A good complete fertilizer for Fall and winter will produce fruit for next year.

There is a difference in fertilizers,—

Use CHACO and see.

CHASE & COMPANY

Sanford, Florida



FLORIDA'S OWN INDUSTRY

In this and subsequent advertisements the Armour Fertilizer Works discusses various phases of citrus growing and marketing.

1. Importance of the citrus industry to Florida.
2. Nursery stock and young groves.
3. Bearing groves and varieties of fruit.
4. Harvesting.
5. Packing.
6. Shipping.
7. Marketing.
8. Advertising.
9. Citrus by-products.
10. Salute to the industry.

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Homestead Fort Myers,
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Arcadia and Palmetto



THE citrus industry . . . growing and marketing citrus fruits and their by-products . . . is Florida's foremost industry. It is the bread-and-butter business of this state; the backbone of prosperity.

In millions of homes in a dozen nations of the world there is a daily demand for Florida-grown citrus fruits with their treasure of health drawn from Florida's life-giving sun and Florida's fertile soil.

Engaged in supplying this ever-increasing demand are thousands of experienced and successful growers. This year their groves will yield a crop estimated at 22,000,000 boxes. Marketed, this fruit becomes dollars which return to Florida to be distributed among the many businesses that depend on the citrus industry for support.

Banks . . . stores . . . crate factories . . . machinery and automobile dealers . . . chemical plants . . . fertilizer factories—all over Florida the prosperity of these and other businesses is affected directly by the prosperity of the grower.

Thus does the citrus industry interlock vitally with Florida's general welfare. Thus does it serve as

the backbone of Florida's prosperity.

Realizing this, the Armour Fertilizer Works has played an important part in the citrus industry by making every effort to further the success and welfare of the grower by cooperation and by providing him with reliable high-grade fertilizers of unvarying excellence as producers of profitable crops—for just as citrus growing is a basic element in Florida's success, so is good fertilizer basic in providing profitable citrus crops.

Many of Florida's best known growers rely on the proved ability and high quality of Armour's fertilizers to produce consistently profitable crops. Armour's fertilizers will increase your citrus profits, too. There is an Armour warehouse near you, fully stocked with Armour brands.

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County State

Dealer's Name

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BIG CROP FERTILIZERS

"Please Say You Saw It In The Citrus Industry"



Italian Production and Exports of Citrus Fruit

As is well known the production of citrus fruit is one of the major activities of the Messina Consular District, states American Consul R. R. Bradford, in a report to the State Department and made public by the Department of Commerce. The yield during 1929 was most abundant. Unfortunately for Sicilian growers, however, other producing countries, likewise enjoyed bountiful crops of citrus fruit and Sicilian lemons and oranges had to meet strong competition in European markets. According to figures of the Central Institute of Statistics the 1929 production of lemons in Sicily totaled 992,868,506 pounds as compared with 841,449,523 pounds in 1928, a gain of 151,418,983 pounds. Of the total production 847,695,596 pounds were made up of winter lemons and 145,172,910 pounds of "verdelli" lemons. Of the total production the Messina district accounted for 745,600,395 pounds.

The yield of sweet oranges in Sicily was 334,221,328 pounds in 1929 as compared with 260,014,933 pounds in 1928, an increase of 74,206,395 pounds. Of the total production the Messina district accounted for 258,158,660 pounds. The production of Sicilian mandarins is stated by the above-mentioned bureau to have been 18,340,067 pounds as compared with a total of 20,302,161 pounds, the previous year, a decrease of 1,962,094 pounds. Of the total yield 40 percent was produced in the Messina consular district. The following table shows the total production of citrus fruit in Sicily during the year 1929:

	Pounds
Citrons	2,414,037
Mandarins	18,340,067
Lemons	847,695,596
Bergamots	176,368
Verdelli lemons	145,172,910
Oranges	334,221,328
GRAND TOTAL	1,348,020,306

According to data compiled from monthly figures published by "Camera Agrumaria" a total of 5,093,515 cases of lemons were exported by sea and rail from the ports of Messina, Catania, Palermo, Reggio Calabria and Siracusa during the year 1929. Of this amount the Messina district exported 2,545,460 cases. Of this total lemon export 4,625,034 cases were shipped to foreign destinations while 468,481 cases were

sent to the Italian mainland. The lemon exports abroad and to the Italian mainland fell from a total of 5,104,772 cases in 1928 to 3,093,515 in 1929. As compared with lemon exports for 1926 and 1927, those of 1929 showed a heavy drop, the figures for 1926 and 1927 being 5,387,670 cases and 5,543,818 cases respectively, as contrasted with the 1929 total of 5,093,515 cases.

As in previous years England retained first place as purchaser of Sicilian lemons, followed by Germany United States, Greece, France, Rumania and Austria in the order named. Exports of Sicilian lemons to England rose from 1,035,368 cases in 1928 to 1,346,962 cases in 1929. Germany's purchases likewise increased mounting from 995,896 cases in 1928 to 1,186,784 cases in the year under review. Exports to the United States, however, showed a decided decrease, falling from a total of 972,179 cases in 1928 to 764,727 cases in 1929. Exports of Sicilian lemons to Greece increased greatly the totals being 91,612 cases and 153,693 cases in 1928 and 1929 respectively. Exports to France showed a slight drop, falling from 115,380 cases in 1928 to 112,230 cases in the year under review. Shipments to Rumania rose from 79,588 cases in 1928 to 108,020 cases in 1929, while exports to Austria declined from 132,235 cases to 101,457 cases in the same period. The following table shows the export to foreign destinations of lemons, sweet oranges and mandarins during the years 1928 and 1929:

A total of 1,593,784 cases of sweet

oranges was exported by sea and rail from the ports of Messina, Catania, Palermo, Reggio Calabria and Siracusa during the year 1929. This was a slight increase over the figure of 1,576,829 cases for the previous year. Of this amount the Messina district exported 1,474,645 cases. Of the total sweet orange export 1,247,917 cases were shipped to foreign destinations while 345,867 cases were sent to the Italian mainland. The exports to foreign destinations increased from 1,146,506 cases in 1928 to 1,247,917 cases in 1929, while shipments to the Italian mainland dropped from 429,613 cases in 1928 to 345,867 cases in the year under review.

As in the past Germany was by far the heaviest purchaser of Sicilian sweet oranges, 506,317 cases being sent to this destination in 1929 as compared with 390,781 cases in the previous year. Austria, though far behind Germany, was second best customer, her purchases for 1929 being 159,560 cases as contrasted with 238,100 cases in 1928. Sweden held third place as a purchaser with 132,912 cases in 1929 as compared with 107,855 cases in the previous year, while Hungary was the next best customer with 84,434 cases in 1929 as contrasted with 95,931 cases in 1928. A total of 947,133 small cases of mandarins was exported by sea and rail during the year 1929. This figure represented a decided increase over the total of 658,785 small cases of the previous year.

The production and export of mandarins is confined almost entirely to (Continued on page 26.)

	LEMONS (Cases)		SWEET ORANGES (Cases)		MANDARINS (Small Cases)	
	1928	1929	1928	1929	1928	1929
Albania		2,054				
Austria	132,235	101,457	238,100	159,560	100,767	79,517
Argentina	17,764	19,536				
Belgium	101,986	85,004	473	2,735	981	
Bulgaria	17,101	18,660	748	3,340		
Czechoslovakia	26,515	34,533	7,250	26,252	30,148	16,908
Denmark	24,141	29,436	14,880	22,401		904
Egypt	15,513	13,544		260		3
England	1,035,368	1,346,962	5,067	3,871	1,100	16,348
France	115,380	112,230	9,835	15,677	1,605	13,085
Germany	995,896	1,186,784	390,781	506,317	140,200	349,730
Greece	91,612	153,693	1,420	24,193		
Holland	51,356	95,128	187	2,014	1,200	2,900
Hungary	80,516	82,894	95,931	84,434	74,207	42,264
Yugoslavia	25,320	26,968	59,618	46,281	7,122	1,573
Malta	2,348	2,035	8,902	8,103	96	12
Norway	11,587	5,748	11,150	9,071		
Poland	28,437	41,284	3,222	52,021	15,865	26,742
Rumania	79,588	108,020	26,264	87,237		
Russia	129,603	99,746	3,510			
Sweden	18,212	28,779	107,855	132,912	86	3,909
Switzerland	105,797	65,169	138,836	70,776	7,024	31,820
Turkey	196,692	97,294	7,671	1,632	150	50
Ukraine		21,056				
United States	972,179	764,727				
All others	72,888	69,190				
TOTAL	4,854,735	4,625,034	1,146,506	1,247,917	345,867	592,463

NOTE—One case equals 88.184 pounds; one small case equals 44.092 lbs.



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DO YOU know that **SIX TIMES** as much Synthetic Nitrogen Fertilizers were used in Florida last year as the year before—**BECAUSE** the results were so remarkable, so outstanding, so visible? And that these results were obtained at a great saving in fertilizer cost?

Faster and faster travels the good news of these big values in fertilizers. For never before has fertilizer superiority been so quickly recognized!

Synthetic Nitrogen Fertilizers supply the highest quality of soluble available plant-food at the lowest cost. And, by eliminating useless weight, they reduce freight, storage and handling.

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15% Nitrogen; 18.2% Ammonia

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- No. 1—15% Nitrogen (18.2% Ammonia), 30% Available Phosphoric Acid, 15% Potash.
- No. 2—16 1/2% Nitrogen (20% Ammonia), 16 1/2% Available Phosphoric Acid, 21 1/2% Potash.
- No. 3—15 1/2% Nitrogen (18.8% Ammonia), 15 1/2% Available Phosphoric Acid, 19% Potash (Sulfate).
- No. 4—15% Nitrogen (18.2% Ammonia), 11% Available Phosphoric Acid, 26 1/2% Potash.
- No. 5—10% Nitrogen (12.1% Ammonia), 20% Available Phosphoric Acid, 20% Potash.



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Tampa, Florida, Dept. A.

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Trees, Ornamental

Ornamental Trees

By Harold Mowry

Florida's climate, soils, and location form a combination that fosters the growth of an exceptionally wide variety of trees as well as other plants. The geographic location of the state, its peninsular shaping which makes no part farther than 75 miles from salt water, and the close proximity of the Gulf Stream to parts of its coast make of it the most tropical of any of the states. Lying between latitude 31° on the north and 24½° on the south, its latitude is comparable to that of the portion of China lying between Shanghai on the north and Canton on the south, and to that of a portion of the Sahara desert in Africa—Cairo and Jacksonville having nearly the same latitude.

The southernmost portion of the state is quite tropical, the flora being identical or closely allied to that of the West Indies. Numerous plants, both herbaceous and arboreal, that are truly tropical in requirements are found in this region. The northern section of the state lies in the lower Austral Zone or Austroriparian area which gives a probable difference of 15° to 20° F. in the minimum temperature experienced in the extreme northern and southern sections. The obtaining climatic conditions, diversity of soil types and slight differences in elevation have given to Florida a larger number of tree species than any like-sized area in America north of Mexico. Almost one-half as many trees as are native to the United States and the West Indies are found in Florida as indigenes.

Throughout the northern belt, trees of the temperate zone are in greatest number, there being 50 or more species in that area that are also natives to the northern and northeastern United States and some 90 species that grow as natives in the Southern states. Over one-half of these extend their range well into the central part of the state. The same condition holds true for many shrubs. In the extreme south, in favored locations, the tropical plants come into their own and are not found in other states.

There are over 300 species of trees native to Florida, these being divided into 15 gymnosperms, 12 monocotyledons, and the balance dicotyledons. A clear distinction between shrubs and trees is not easily made, but usually those plants having more or less upright stems reaching a height of 12

or 15 feet are considered to be trees. There is an unknown number of trees thriving in Florida which have been introduced from other places. It is possible that there are as many, or more, introduced species as there are natives.

The advantages derived from the planting of ornamental trees are so many and so obvious that they need not be repeated. The contrast between homes with and without tree plantings, and between the residential sections of towns or cities with and without tree-lined avenues so greatly shows the value of the trees that any question is limited mainly to that of variety and culture.

Both native and exotic trees have a place in most plantings. A great advantage of native varieties is their proven adaptability to the soil and climate. When properly planted they generally will make a thrifty growth with a minimum of care, and because of their long residence are more or less immune to the common insects and diseases of the locality. Many exotics seem to be entirely at home under their new environment and make a vigorous growth under the same conditions as the native plants.

It occasionally happens in locating the new homesite that grading or filling is required with a consequent possible damage to standing trees that the builder wishes to preserve. Where grading is done many trees can be saved by leaving a slight mound about them. In filling, most trees cannot live when soil is banked about them to a height much exceeding their natural depth. To a degree this can be averted by leaving a depression, even though it assume proportions of a shallow well, about the trunk. This can be grassed over in many instances, it then detracting little or nothing from the appearance of the finished planting.

When planting street or roadside trees, small ones preferably should not be planted as they are more easily destroyed by roaming stock or careless motorists. Such trees should have an unbranched trunk to a height of 7 or 8 feet. If planted too closely and thinning out is to be done at a future time it is advisable to do this before the lower branches of the tree that is to be preserved have died from overcrowding. If thinning is deferred too long it may result in one-sided or unsymmetrical specimens. Pruning, to some extent, is always necessary. Either dead or living branches, if cleanly cut off close to the trunk and painted over, will not be followed by decay as quickly as when long protruding stubs are left. Lead paint or protexol are satisfactory wound dressings. Paraffin is good for a short time but does not ordinarily last until the wound has calloused over.

Unless a decided clump of trees is wanted, adequate room must be left



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CITRUS NURSERY NEWS

We have for sale 200,000 Orange and Grapefruit trees of staple varieties on sour orange roots. Caliper ½ to 3½ inches. Fine stock. Must be sold. Write to us for prices.

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"Please Say You Saw It In The Citrus Industry"

for normal development. The required room will vary according to the variety of tree in question. This will vary from about 20 with dogwood to perhaps 50 feet with magnolias. Street or roadside trees are seldom planted closer than 30 feet. The latter plantings should be made as uniform as possible by planting only one kind of tree rather than a mixture of species, and by selecting trees of approximately the same size at the time of transplanting.

Nearly all trees will grow best when given fertilizers at intervals. Manures are satisfactory with most but commercial fertilizers are probably more extensively used. One analyzing about 4 percent nitrogen, 8 percent phosphorus, and 4-6 percent potash is satisfactory. For palms, such organic fertilizers as manures, tankage, and bone meal are desirable.

The list of trees available for Florida planting is so great that it is somewhat difficult to select any few as being best for a given purpose. Those following are perhaps the most widely planted.

The following trees are suitable for planting in the northcentral and northern sections of the state. The deciduous sorts are marked with the letter D in parenthesis; evergreens by the letter E. Figures represent the maximum height usually attained.

Palms

Chamaerops humilis
Cocos australis type
Phoenix canariensis
Phoenix sylvestris
Rhapidophyllum hystrix
Sabal palmetto
Trachycarpus excelsa
Washingtonia app.
Dwarf European Fan Palm
Canary Island Date Palm
Indian Date Palm
Dwarf, Needle Palm
Cabbage Palmetto
Windmill Palm
Washington Fan Palm

Conifers

American Arborvitae (Thuja occidentalis) 50 ft.

Chinese Fir (Cunninghamia lanceolata) 75 ft.

Columnar Cypress (Cupressus sempervirens, var. stricta) 60 ft.

Cypress Pine (Callitris robusta) 75 ft.

Deodar Cedar (Cedrus deodara) 100 ft.

Italian Cypress (Cupressus sempervirens) 75 ft.

Juniper (Juniperus communis) 35 ft.

Knight Cypress (Cupressus benthami, var. knightiana) 35 ft.

Maidenhair Tree (Ginkgo biloba) 75 ft.

THE CITRUS INDUSTRY

Oriental Arborvitae (Thuja orientalis) 20-25 ft.

Portuguese Cypress (Cupressus lusitanica) 40 ft.

Red Cedar (Juniperus virginiana) 75 ft.

Retinospora in variety (Chamaecyparis pisifera, vars. filifera, squarrosa, etc.)

White Cedar (Chamaecyparis thyoides) 60 ft.

Shade Trees

Bay—Loblolly (Gordonia lasianthus) (E) 50 ft.

Bay—Sweet or Red (Tamala Borbonia) (E) 30 ft.

Cherry Laurel (Laurocerasus caroliniana) (E) 35 ft.

(Continued Next Month)

Chemical Warfare

The annual fight against the peach tree borer is now under way. Instead of digging them out, peach growers now put them to sleep with a dose of poison gas applied during the period between November 1 and December 1.

The chemical used in this warfare is paradichlorobenzene. It is a white crystalline substance, and usually has a peculiar odor. When it is exposed to the air it slowly gives off a poisonous gas. The fumes are heavier than air, so they penetrate the burrows of the borers and do the work much more efficiently than it could be done by a knife.

J. R. Watson, entomologist of the Florida Experiment Station, gives the following suggestions for applying this chemical: The earth should be banked up around the base of the peach trees to the height of the highest burrow in the tree. Then in the top of the mound, at least an inch from the tree, a shallow trough should be made in the dirt. Sprinkle an ounce to an ounce and a half of paradichlorobenzene in the trench, cover immediately with several inches of dirt, and pack well. The amount of the chemical to use varies with the age of the tree. Do not use it at all on trees under two years old, and not more than one ounce for three-year trees.

After the mound has been about the tree for two or three weeks it should be torn down, as too long exposure to the fumes of the gas might damage the tree. In no case should the material be sprinkled closer than an inch to the tree, as it is likely to hurt the bark. If directions are followed there is absolutely no danger to the tree, as experiments have been made on hundreds of specimens.

"Please Say You Saw It In The Citrus Industry"

FLORIDA GRAPEFRUIT AND JUICE CANNING PLANTS

(Continued from Page 20)

enton, Florida.

Palmetto Canning Co., Palmetto, Florida.

Ridge Canning Co., Lake Wales, Florida.

Marsarkytown Canning Co., Marsarkytown, Florida.

Southern Potato Products Co., Palatka, Florida.

Leesburg Canning Co., Leesburg, Florida.

Sarasota Canneries, Inc., Sarasota, Florida.

Huston Frozen Products Co., Orlando, Florida.

Florida Sunshine Fruit & Products Co., Orlando, Florida.

Freezing Fresh Fruits

The first laboratory investigation to determine the exact effects of the new quick-freezing process upon fresh fruits frozen during their season for year-round consumption is being conducted in Philadelphia by Dr. J. Cecil Rhodes, Director of the Medical Arts Laboratories, tree-ripened peaches frozen in Georgia last summer will be used for the various tests.

The process employed for the freezing of peaches, and other fresh fruits, in a manner designed to make them available for the table throughout the year, with all their original freshness, flavor and color is essentially the same as that which has been successfully used for the quick-freezing of fresh meats. The successful freezing of the Georgia peaches by Tom Huston, of Columbus, Georgia, during the past season is, however, the first time it has been applied with success to fresh fruit for home or individual consumption.

The first phase of the investigation will include tests to determine the comparative food value, solid content, fruit sugar content and flavor, of the frozen fruit and fresh peaches of the same variety purchased in produce markets. A second phase of the investigation will go into the matter of vitamin content. Rapid extension of the quick-freezing process to a wide variety of fruits, according to Mr. Huston, forecasts a revolution in the American diet comparable to that ushered in by the invention of the refrigerator car.

It promises, he says, a further large increase in the number of fresh, vitamin-bearing foods available throughout the winter, together with a wider, year-round, and more stable market for the grower.

ITALIAN PRODUCTION AND EXPORTS OF CITRUS FRUIT

(Continued from page 22.)

the Palermo district, the Messina district exporting only 49,387 small cases during 1929. Of the total mandarin export 592,453 small cases were shipped to foreign destinations while 354,680 small cases were sent to the Italian mainland. Exports to foreign destinations increased from 383,883 small cases in 1928 to 592,453 small cases in 1929, while shipments to the Italian mainland rose from 274,902 small cases in 1928 to 354,680 small cases in the year under review.

As in the case of sweet oranges Germany was far in the lead as an importer of Mandarins, taking 349,730 small cases in 1929 as compared with 140,200 small cases in the previous year. Germany's purchases represented 59 percent of the total 1929 mandarin export to foreign destinations. Austria with 79,517 small cases was second best customer, Hungary, Switzerland and Poland following in the order named. Considering the combined exports of lemons, sweet oranges and mandarins, Germany was far in the lead in 1929 as importer of Sicilian citrus fruits with a total of 2,042,831 cases and small cases, followed by England with 1,367,181 cases and small cases and the United States with 764,727 cases. The United States purchased only lemons and England's imports were also chiefly confined to this and mandarins.

CITRUS COMMENTS

(Continued from page 11.)

Lespedeza—(les-pe-de za)
 Leucanthemum—(lu-kan the-mum)
 Villosa—(vi-lo sa)
 Vinca—(ving ka)
 Viola—(vi o-la)
 Violacea—(vi-o-la se-a)
 Violet—(vi o-let)
 Virgilia—(ver-jil i-a)
 Viscosa—(vis-ko sa)
 Vitalba—(vi-tal ba)
 Vitis—(vi tis)
 Vittata—(vi-ta ta)
 Vulgaris—(vul-ga ris)

IMPRESSIONS

(Continued from page 19.)

which for many years has handled it to an auction controlled by the Di Giorgio interests; and rumors to the effect that soon all auction accounts of that organization will be transferred to Di Giorgio auctions.

Against this, however, is the fact that even though its president, C. C. Teague is a most important member

of the Federal Farm Board the California Fruit Growers Exchange has not yet accepted any Farm Board money or otherwise come in under the Farm Board wing.

As between Florida and California citrus interests there has long been friendly feeling, and a certain amount of informal coordinated action in addition to exchange of information. A clearing house or bureau which might enable closer coordination of Florida, Texas and California citrus shipments might find favor, if laid along conservative, economical and proper lines; but any movement looking toward the domination of Florida citrus selling by California grower interests will not be likely to find any considerable favor in Florida. Hats off to the Californians for many of their achievements, but in Florida, it is to be remembered, is the oldest citrus industry in this country, the largest acreage and production, an advantage in nearness to markets, and, for the growers generally, a more profitable operation.

WARN PRODUCE DEALERS THEY MUST HAVE LICENSES BEFORE DECEMBER 10TH

All commission merchants, dealers or brokers in fresh fruits and vegetables in interstate trade must procure Federal licenses from the U. S. Department of Agriculture by December 10, or be subject to a fine of not to exceed \$500 plus \$25 for each day they operate without licenses. These penalties are prescribed by the Perishable Agricultural Commodities Act of 1930. Cooperative associations which market products of their members either direct or through agents or distributors also must take out licenses.

Approximately 30,000 produce dealers in the United States are subject to the provisions of this law. Applications for licenses should be filed at once in order to insure licensing by December 10. Applica-

tions may be obtained from the Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington, D. C.

The Federal department announced the provisions of the licensing law several months ago and urged members of the produce trade to procure licenses before the date set by Congress, December 10. Nevertheless, only a few thousand applications have been received to date. Government officials declare that they are without power to extend the date of issuance of licenses and that they will be compelled to carry out the penalty provisions after December 10th.

Farmers who sell only produce which they raise are exempt from the law. Any person buying produce solely for sale at retail, not to exceed twenty carloads in any calendar year, also is exempt.

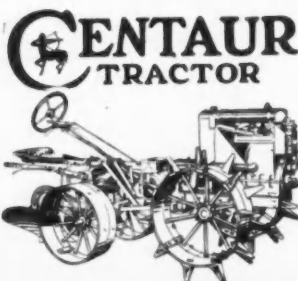
Carbon bisulfide is cheap stuff, but almost invaluable when it saves about 25 percent of the stored corn crop from weevils. Ten pounds per 1,000 cubic feet in a tight bin will do this work. The application should be repeated when necessary.



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The 6-10 Grove Tractor That Has Made Good in Florida for

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For every grove operation it does all of the work of a good big team and more. Light in weight—Low—Compact—Turns Short—Handles Easily—Reduces Costs of Grove Maintenance—Equipped with Traction Lugs or Rubber Tires.

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Florida State Distributors
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"Please Say You Saw It In The Citrus Industry"

United States Standards For Citrus Fruits

Below is given the new United States regulations for 1930 governing the grading and packing of citrus fruits according to United States standards. Changes from previous regulations are printed in black face type, followed by the phraseology of the previous regulations:

Grades

U. S. Fancy shall consist of citrus fruits of similar varietal characteristics which are mature, well colored, firm, well formed, of smooth texture for the variety, fairly thin skinned, free from decay, bruises, split navels, buckskin, creasing, scab, ammoniation, sprayburn, cuts which are not healed, hail injury, bird pecks, growth cracks; from injury by black or unsightly discoloration, scars, scale, thorns, green spots, or rough and excessively wide, or protruding navels; and from damage caused by dirt or other foreign materials, sprouting, dryness, limb rubs, disease, insects or mechanical or other means.

In this grade not more than 20 per cent of the surface of each fruit may show light discoloration.

U. S. No. 1 shall consist of citrus fruits of similar varietal characteristics which are mature, fairly well colored, firm, well formed, of fairly smooth texture for the variety, fairly thin skinned, free from decay, bruises, buckskin, creasing, sprayburn, cuts which are not healed, hail injury, bird pecks, growth cracks, and from damage caused by split, or rough, or protruding navels, scab, ammoniation, black or unsightly discoloration, scars, scale, thorn scratches, green spots, dirt or other foreign materials, sprouting, dryness, limb rub, disease, insects or mechanical or other means.

In this grade (except when designated U. S. No. 1 Russet) not more than 75 per cent of the surface of each fruit may show light discoloration.

In addition to the statement of grade any lot may be further classified as Bright, or Russet, as hereinafter defined, provided, that any lot of fruit classified as Russet must have not less than 40 per cent, by count, of the fruit showing more than 75 per cent light discoloration.

U. S. No. 2 shall consist of citrus fruits of similar varietal characteristics which are mature, which may be

only slightly colored, fairly firm, slightly misshapen and slightly rough but which are free from decay, bruises, cuts which are not healed, growth cracks, and from serious damage caused by split or protruding navels, buckskin, creasing, scab, ammoniation, sprayburn, hail injury, bird pecks, black or unsightly discoloration, scars, scale, thorn scratches, green spots, dirt or other foreign materials, sprouting, dryness, limb rubs, disease, insects or mechanical or other means.

In addition to the statement of grade any lot may be further classified as Russet, as hereinafter defined, provided, that any lot of fruit classified as Russet must have not less than 40 per cent, by count, of the fruit showing more than 75 per cent light discoloration.

Unclassified shall consist of citrus fruits which are not graded in conformity with the foregoing grades.

Color Classification

Any lot of fruit may be classified

according to the amount of discoloration as follows: Bright, when the surface of the fruit shows not more than 20 per cent light discoloration. Russet, when the surface of the fruit shows more than 75 per cent light discoloration and meets the specified grade requirements in other respects. In 1929 regulations read as follows: Russet, when the surface of the fruit shows no black or unsightly discoloration.

Tolerances

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances will be permitted in the grades as specified.

U. S. Fancy Grade. Not more than 10 per cent, by count, of any lot may be below the requirements of this grade but not to exceed one-fourth of this amount or $2\frac{1}{4}$ per cent, shall be allowed for injury by black or unsightly discoloration and not more than one-twentieth of this tolerance,

(Continued on page 30)



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Good Top
Dressing
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18% Ammonia
14% Potash

Don't Experiment--
KNOW

YOU can't afford to feed your groves less than the best . . . hundreds of Florida growers use A. & G. Fertilizers year in and year out, because they **KNOW** they get the best when buying A. & G. No fillers—A. & G. is **ALL FERTILIZER**. There is an A. & G. Mixture to suit every soil problem.

**ATLANTIC & GULF
FERTILIZER CO.**

C. NASH REID, President
Jacksonville . . . Florida

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Price List
No. 64



Florida Orange Juice Direct To Consumer

Has the dream of the ages come true?

Are the housewives of the country to enjoy the privilege and pleasure of having fresh Florida orange juice delivered daily at their doors as they now receive their milk supply?

Officials of the Florida Citrus Exchange answer "yes" to both queries—and this because of two long time contracts recently signed up with the National Juice Company, subsidiary of the National Dairy Products, Inc., of New York and with Tom Huston Frozen Foods, Inc., of Columbus, Ga.

The contract with the National Juice Company calls for the delivery of fresh Florida orange juice to the homes of the country, in the same manner as the National Dairy Products concern delivers its milk. The Huston contract provides for the distribution of Florida orange juice through the more than 90,000 retail stores through which he has developed the sale of his peanut, confections and frozen fruit products.

These contracts are expected to provide an outlet for millions of boxes of juice grade oranges which heretofore have been offered on the open market in direct competition with the fancy grades, and to the extent that the canning and freezing of orange juice becomes popular with the consuming public, just to that degree will the price of the higher grades be boosted.

These contracts are in addition to the previously announced program of the Exchange Juice Corporation, which plans sale of the juice to the wholesale trade.

The deal with the National Juice Corporation according to C. C. Commander, general manager of the Exchange, probably is the largest single transaction in the history of American citrus, covering an 11 year period and involving millions of boxes of fruit. Mr. Commander asserted that the transaction will have a far-reaching effect upon the entire citrus industry, though its principal benefits will accrue to Exchange growers. It will absorb at a profit to the grower the low grade of fruit which has been a burden and a loss generally in marketing and, at the same time, will remove that grade from competition with high grade fruit in the fresh fruits market, he said.

The juice corporation will juice and freeze the fruit in Florida, shipping the frosted product to northern terminals for defrosting and bottling. Until such time as it has facilities of its own in the state, it will juice and freeze the fruit in the plant of the Tampa Union Terminal Company.

The juice company will also serve a wholesale trade such as hotels, cafes and fountains as well as distribute direct to the home.

The corporation aims at the development of a market for a considerable volume the first season with increasing volumes each year thereafter as consumer demand is built up. It plans an intensive campaign, starting with key cities and widening as production allows.

In order to stimulate the building of the greatest possible consumer demand the first year, the Exchange has allowed for a rebate to the company of 10 cents a box, provided the company proves it has spent 22½ cents a box on advertising. This rebate applies only during the first year, however.

First key markets probably will be Rochester, N. Y., Philadelphia and Memphis. Careful analysis will be made of these commercial tests to lay the plans for marketing of several millions of gallons of juice annually.

Signing of the contracts marks the

close of negotiations begun by Mr. Commander with T. H. McInerney, president of the National Dairy Products, Inc., more than a year ago. The contracts were submitted to the Exchange directors at their last meeting and were approved.

A system of distributing fresh orange juice to the consumer on a satisfactory, commercial basis has long

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FOR PERMANENCE



"Please Say You Saw It In The Citrus Industry"

been sought by the Exchange. Much experimentation and investigation has been done on the methods by which the orange juice could be handled. Recently, the Exchange approved the freezing method and arranged for a subsidiary of its own to prepare a frozen product and sell it to wholesale trade.

The new deal adds development of effective home distribution and additional freezing operations, giving the Exchange growers still greater benefits of plant and distribution services, besides a profit from their juice grade oranges, Mr. Commander pointed out.

At the same time announcement was made that a contract has been closed with Tom Huston, nationally known peanut products distributor, involving millions of boxes of fruit with millions of dollars to the growers.

The contract is part of merchandising plans to distribute frozen orange juice and other fruit products through the 90,000 retail outlets developed by Mr. Huston in the merchandising of peanut products the past five years. The new plans were started this summer with the erection of a \$175,000 plant in Georgia for freezing peaches. A special company, the Tom Huston Frozen Foods, Inc., was organized to carry out these plans.

The company will start upon the frozen juice project immediately, C. C. Street, Florida manager, announced. Construction will be started on the first plant, to be located in Orlando, without delay. This plant will have a productive capacity of four carloads of the frozen product and will be operated in two shifts a day this season. In boxes of fruit, this capacity represents about 750,000 boxes a season. Other plants will be constructed later.

The Huston company will use the process developed by the Gay Engineering Company of California. This concern will also have charge of erection and installation of the plant in Orlando. One wholesale and two retail types of product are planned. The frozen juice will be made up in large blocks for the wholesale trade. Individual cakes, similar to those of ice cream and round containers of various sizes will be made up for the retail trade.

Tom Huston, a product of the South, is recognized as one of the merchandising geniuses of the age. Only five years ago, with a small working capital, he began the distribution of peanuts under a new merchandising plan. He rapidly expand-

THE CITRUS INDUSTRY

ed his market, developing thousands of retail outlets, all served by his own organization, until today 90,000 or more retail stores carry his line.

RUSTY APPEARANCE OF ORANGES IS CAUSED BY TINY RUST MITE

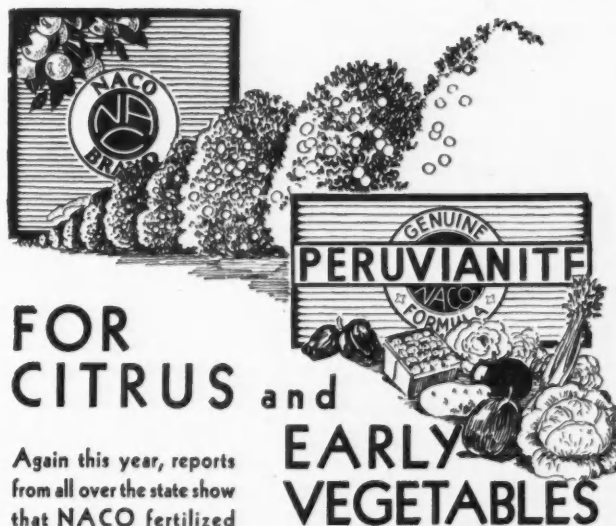
Rusty looking oranges on display at fruit stands and grocery stores have doubtless caused many people to wonder why some oranges have this appearance while others are bright. The answer is that the rusty oranges have been attacked by very small creatures, called rust mites, which suck the juices from the skin of the fruit, leaves, and young tender bark.

Although the food value of oranges is not affected materially by attacks of rust mites, such fruit usually sells

for 25 to 50 cents a box less than bright fruit of the same size, because of the popular belief that it is not as good as bright fruit. For this reason the rust mite is an important economic pest.

Studies of the life history and feeding habits of the rust mite and of measures for its control have been in progress for a number of years under the direction of the U. S. Department of Agriculture. A report of these investigations appears in Technical Bulletin 176-T, The Citrus Rust Mite and Its Control, just published by the department. Copies of the bulletin may be obtained, as long as the supply lasts, by writing to the Office of Information, U. S. Department of Agriculture, Washington, D. C.

The bulletin describes the insect, tells how to identify it, explains its life history, and gives suggestions for its control.



Again this year, reports from all over the state show that NACO fertilized groves are in excellent condition, both as to yield and quality of the fruit and a splendid tree growth which promises another good crop next year.

PERUVIANITE can now be had in three different forms. In addition to the original high-analysis formula of 9-9-9 which showed remarkable results on all kinds of truck crops dur-

ing the past year . . . two new formulas 6-12-6 and 6-12-12 are now available.

These new formulas are especially adapted to Citrus and growers who used them for the Fall Application are high in their praise of this new NACO Product which derives its Ammonia from two sources only . . . NitraPo and Genuine Peruvian Guano in a fifty-fifty combination that has both punch and lasting quality.

NITRATE AGENCIES
NACO BRAND
401-1407 LYNN BUILDING JACKSONVILLE FLORIDA

"Please Say You Saw It In The Citrus Industry"

UNITED STATES STANDARDS FOR CITRUS FRUITS (Continued from page 27)

or $\frac{1}{2}$ of one per cent, shall be allowed for decay, but no part of this tolerance shall be allowed for worms or worm holes. Part shown in boldface not included in 1929 regulations.

U. S. No. 1 Bright Grade. Not more than 10 per cent, by count, of any lot may be below the requirements of this grade but not to exceed one-fourth of this amount, or $2\frac{1}{2}$ per cent, shall be allowed for damage by black or unsightly discoloration and not more than one-twentieth of this tolerance, or $\frac{1}{2}$ of one per cent, shall be allowed for decay but no part of this tolerance shall be allowed for worms or worm holes.

U. S. No. 1 Grade. Not more than 10 per cent by count, of any lot may be below the requirements of this grade other than for discoloration, and not more than one-twentieth of this amount, or $\frac{1}{2}$ of one per cent, shall be allowed for decay but no part of this tolerance shall be allowed for worms or worm holes. In addition, not more than 10 per cent by count, of any lot may not meet the requirements relating to discoloration but not to exceed one-fourth of this amount, or $2\frac{1}{2}$ per cent, shall be allowed for damage by black or unsightly discoloration.

U. S. No. 1 Russet, U. S. No. 2, and U. S. No. 2 Russet Grades. Not more than 10 per cent, by count, of any lot may be below the requirements of any these grades, and not



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more than one-twentieth of this amount or $\frac{1}{2}$ of one per cent, shall be allowed for decay but no part of this tolerance shall be allowed for worms or worm holes. Part shown in boldface not included in 1929 regulations.

Decay, or other deterioration developing in transit on citrus fruits otherwise up to grade shall be considered as affecting the condition and not the grade.

Standard Pack

Fruit shall be arranged in the boxes according to the approved and recognized methods. The fruit shall be tightly packed and the wrap show at least one-half twist. Each fruit shall be enclosed in its individual wrapper, except that in packs of oranges and tangerines of a size 250 and smaller only fruit in the top and bottom layers and fruit exposed at the sides of the box shall be required to be wrapped.

Each box of oranges shall show a minimum bulge of $1\frac{1}{4}$ inches. With grapefruit the minimum bulge shall be 2 inches. Boxes of tangerines shall show a minimum bulge of $\frac{3}{4}$ inches.

In order to allow for variations incident to proper packing not more than 5 per cent of the boxes in any lot may not meet the requirements for the standard pack.

Definitions of Terms

As used in these grades:

1. "Similar varietal characteristics" means that the fruits in any container are similar in color and shape.

2. "Well colored" means that the citrus fruit is of a bright yellow tint or orange in color with practically no trace of green color.

Scale, when occurring as more than one ring, or any ring when the average outside diameter is more than $1\frac{1}{2}$ inches, or scattered scale when it detracts from the appearance of the fruit to a greater extent than does the $1\frac{1}{2}$ inch ring. In 1929 regulations read as follows: Scale, when more than 15 scattered Purple scale, or 30 scattered Chaff scale, or 30 scattered Long scale, or 8 scattered Red scale, or when occurring as more than one ring, or any ring when the average outside diameter is more than $1\frac{1}{4}$ inches.

Scale, when occurring as one blotch or ring the average outside diameter of which is more than $1\frac{1}{4}$ inches; or, scattered scale or small rings which detract from the appearance of the fruit to a greater extent than does the $1\frac{1}{2}$ inch blotch or ring. In 1929 regulations were the same except that diameter of ring was $1\frac{1}{2}$ inches rather than $1\frac{1}{4}$ inches.

FAST FREEZING AS A MEANS OF FOOD PRESERVATION (Continued from page 7)

charge. In cities where L. C. L. shipments are sold, it is reasonable to assume that a retail price will be maintained at a figure which would permit absorption of additional transportation charges.

Distribution

The distribution of frozen foods at present best may be handled through the ice cream and dairy companies who are in most instances prepared to handle these products with the majority of their delivery equipment and a few minor changes in the balance would enable them to successfully distribute frozen products.

Frozen products can be drawn from the central storage plant and distributed to the trade at convenient intervals by the refrigerated trucks or in refrigerated shipping containers using dry ice as a medium of refrigeration, which would not be expensive, inasmuch as a small quantity of dry ice will keep the temperature sufficiently low to protect the product which is in a frozen state and requires very little refrigeration to maintain it so.

The present facilities in chain stores and dairy depots is not suffi-

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our product always arrives
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use of this highly important
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on the shortest notice in large,
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cient to maintain the product at temperatures which are safe, however, it can easily be converted by means of adding a thickness of glass on the show cases and a thin layer of zero blanket lining on the inside walls covered with masonite and re-finished in desired color enamel. This, together with an additional coil or speeding up on compressor will convert present equipment at a small cost to properly handle frozen products.

Very shortly, a storage showcase is projected to come on the market which will be charged or discharged without disturbing the temperature of the storage case.

The present ice cream storage units in the drug stores will keep frozen products very successfully when kept closed as in the case of ice cream storage.

The restaurants and tea rooms have commercial refrigerators that can easily be converted to low temperatures as outlined heretofore, at a small cost and will be, as demands for frozen products increase.

The development of electric refrigeration has been so rapid that within a few years, it will be possible to store a quantity of frozen products for days in the home. In fact, the new Kelvinator has a large cold storage compartment for this purpose and will easily store several pounds of frozen products.

The whole world is clamoring for more knowledge of frozen products. Everywhere frozen products are exhibited, great enthusiasm and interest is aroused. We are building a great new industry and we must be exceedingly careful not to make any mistakes, as a serious mistake at this time, can retard our progress several years.

COVER CROPS FOR CITRUS GROVES

(Continued from page 6)

Table 2 shows the growth of trees under various cover crops. It is noted that the trees on the Crotalaria cover crop area have made the greatest growth while the trees under clean cultivation have made the least growth. All trees being cultivated and fertilized alike.

Fruit records have been kept, thus far the yields have been too small and irregular to be considered in relation to the cover cropping scheme. The crop of fruit now on the trees is very promising and the next few seasons fruit yields should begin to tell us something as to the value of cover crops in fruit production.

Trees are NITRATE-HUNGRY NOW

YOUR fruit trees can't tell you they're hungry. They can't whinny like a colt, or moo like a calf, but they need food rations just the same.

Now is the time to feed them Chilean Nitrate to carry them through the winter in healthy shape and have them ready for a good spring bloom.

Chilean Nitrate is the citrus tree's favorite food. Long-time experiments prove this. It gives best results because in addition to nitrogen, it contains iodine, boron, magnesium, etc., rare elements that Nature gave it. It is a super-nitrate ... Nitrogen PLUS.

See your dealer ... and when you order nitrate say "Chilean" nitrate. That one word "Chilean" is your protection and your dealer's too. He wants to sell you the best and he will if you order Chilean.

New Low Prices!

Chilean is lower in price this year than it has ever been since the war. Now is the time to place your order.

100-pound bags: Remember, Chilean Nitrate comes in the new small size bag—the bag without a backache.

1830-1930—Chilean Nitrate is completing its 100th year of profitable service to the American farmer.

Chilean Nitrate of Soda EDUCATIONAL BUREAU

Orlando Bank
& Trust Bldg.



Orlando,
Florida

In writing for literature or information please refer to Ad. No. D-25

"Please Say You Saw It In The Citrus Industry"

Canned Grapefruit Production and Trade

There is available, for 10 cents a copy, at the Superintendent of Documents, Government Printing Office, Washington, D. C., or at the nearest District Office of the Bureau of Foreign and Domestic Commerce, Trade Information Bulletin No. 706, entitled "Canned Grapefruit Production and Trade."

This publication was prepared with a view to assembling under one cover the available information on the production and marketing of canned grapefruit. It is presented as of possible assistance to exporters of canned grapefruit, and should be of value in acquainting interested importers abroad with the conditions under which this product is packed and marketed.

Production of canned grapefruit in continental United States and Porto Rico increased from about 2,000 cases in the 1920-21 season to approximately 1,850,000 cases in the 1929-30 season. Actual export figures are not available but of the 1928-29 pack of about 1,050,000 cases (including Porto Rico) it is estimated that nearly 10 per cent was exported. Substantial quantities of canned grapefruit are shipped annually into Canada and the United Kingdom, and smaller amounts have been sold in a number of the western European

countries, in the Far East, Australia, New Zealand, and Latin America.

Prices of canned grapefruit are competitive with those of other canned fruits; and in the two foreign countries in which some volume of distribution has been attained—the United Kingdom and Canada—canned grapefruit has been able to compete successfully on a price basis. However, the principal competition encountered does not come from other canned fruits but from the fresh grapefruit and other citrus fruits.

INDIAN RIVER FRUIT

NOW DEFINED BY LAW

In a recent decision the Federal Trade Commission defines the Indian River district as including the counties of Brevard, Indian River, St. Lucie and Martin; and issued a definite order that only citrus fruit produced within the boundaries of these counties may be labeled and shipped as Indian River Fruit.

The matter was brought before the Federal Trade Commission by a group of citrus growers on the Indian River. It was alleged that fruit from other sections of the state, sometimes far remote from the Indian River at times was shipped under the guise of

Indian River fruit, to the confusion of trade and consumers, and to the detriment of fruit actually grown in the Indian River country and possessing the accepted Indian River characteristics.

However, the original petition of the Indian River growers to the commission was reported to have requested including all that territory lying along the East Coast up to and including Ormond as the district in which "Indian River Fruit" is produced, thus allowing the Indian River designation to all citrus fruits produced at far north as Ormond on the coast. This was in recognition, it is said, of the fact that fruit produced in all this territory possesses the same characteristics, those which the trade over a period of years has become accustomed to accept as Indian River fruit.

Apparently, the Federal Trade Commission by its own initiative eliminated the Halifax River country, including Ormond, Daytona, New Smyrna, Hawks Park, Oak Hill, and Shiloh, all in Volusia County; and its order as reported in the press, denies the use of the Indian River designation to any fruit except actually produced in Brevard, Indian River, St. Lucie and Martin counties.

Florida fruit and nut crops are turning out better this year than last, while staple crops are not yielding so well, says the United States Department of Agriculture.

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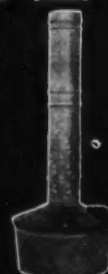
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"Please Say You Saw It In The Citrus Industry"

Roadside Markets Emerging from an Era of Mushroom Growth

A successful roadside market must front on a road with heavy traffic and must sell high-quality, fresh produce at fair prices, says Miss Caroline B. Sherman, associate agricultural economist of the U. S. Department of Agriculture. Attractive display, steady supply and courtesy to customers also are recommended.

That roadside markets have not invariably possessed these qualifications is attested by Miss Sherman. She says, however; "Apparently the stage of mushroom growth in the roadside-market business as a whole has nearly passed. The time has come when farmers, as a group, are inclined to make a fairly careful study of the question before putting much time or money or energy into roadside markets."

Miss Sherman finds that the business of the better roadside markets is increasing. She cites as an example a study in Michigan in which many of the better markets reported

increases of 10 to 15 percent in volume of sales in the second year of business. Cooperative roadside markets also are reported as being successful in some localities.

To aid farmers who contemplate entering the roadside market business Miss Sherman has summarized the principal factors of success and of failure in Leaflet 68-L, entitled "Roadside Markets," just issued by the U. S. Department of Agriculture. The leaflet contains a list of State publications which set forth the results of roadside-market investigations in specified localities and indicates the states in which state or self-regulation has been tried. Leaflet 68-L may be obtained from the Office of Information, U. S. Department of Agriculture, Washington, D. C.

In writing advertisers please mention The Citrus Industry.

PLANT LAWS OF ITALY AND BRAZIL SUMMARIZED IN NEW PUBLICATIONS

Plant quarantine regulations of Italy and Brazil have been translated and summarized for the benefit of American nurserymen and others who may be interested and have been issued by the Plant Quarantine and Control Administration, U. S. Department of Agriculture.

These two new circulars are third and fourth in a series of summaries of the plant quarantine laws of foreign countries, issued by the department. Similar summaries have been issued on the quarantine regulations of Cuba and Mexico.

In announcing the series, Lee A. Strong, chief of the Plant Quarantine and Control Administration, explained that these circulars are reviewed by the proper officials of the country involved.

Copies of the circulars may be obtained free by writing to the Plant Quarantine and Control Administration, U. S. Department of Agriculture, Washington, D. C.

Fallen pecan twigs cut off by the twig girdler should be picked up and burned.

An Ideal Fertilizer Service

There's something just a little different in our Fertilizer Service. There's a feeling of personal relationship which exists between this firm and our customers that has grown up as the result of the close association that exists between us.

An order for fertilizer doesn't mean just a few more tons added to our total volume. It is an indication of the continuance of a friendship which has grown over years of satisfying service or the addition of a new friend who has doubtless learned of the unusual character of our service through one of our pleased patrons.

Trained field men, expert counsel, intimate acquaintance with your growing problems and a sincere desire to render every service that will result in building the greatest profits for our customers, have built for us what we believe is the most exclusive clientele in the entire state.

Naturally our fertilizer must be the very best, else no amount of service would be of value. Write or wire us.

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● **COLOR**

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- 6 Makes possible the marketing of heretofore unknown tropical fruits.
- 7 Ripens and colors fruits and vegetables that mature late in the season.
- 8 Is inexpensive and easily used. Simple apparatus and little experience required.
- 9 Can be applied equally well to a few crates or a whole carload of fruit or vegetables.
- 10 Is neither injurious nor dangerous. Widely used. A proved success.

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Unit of Union Carbide and Carbon Corporation

"Please Say You Saw It In The Citrus Industry"

FEWER PUMPKIN BUGS ON CROTALARIA SPECTABILIS THAN STRIATA SPECIES

Pumpkin bugs are far less numerous on *Crotalaria spectabilis*, or sericea, than on *striata*, J. R. Watson, entomologist with the Florida Experiment Station, has just announced, after making a large number of field tests and observations.

Extensive studies at the Citrus Experiment Station Lake Alfred, showed none on *spectabilis* and a fair infestation on the *striata*. After making many other tests and talking with growers over the state, Mr. Watson believes that the *spectabilis* variety is a much poorer host to pumpkin bugs since it carries pods for a shorter season and the pods are larger so that the bugs can reach the seed only from one side.

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of August 24, 1912, of The Citrus Industry, Published monthly at Tampa, Florida, for October 1, 1930.

State of Florida.
County of Hillsborough.
Before me, a Notary Public, in and for the state and county aforesaid, personally ap-

THE CITRUS INDUSTRY

peared S. L. Frisbie, who, having been duly sworn according to law, deposes and says that he is the editor of The Citrus Industry, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 433 Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1—That the names and addresses of the publisher, editor, managing editor and business manager are:
Editor, S. L. Frisbie, Tampa, Fla.
Business Manager, S. L. Frisbie, Tampa, Fla.

2—That the owners are:
Associated Publications Corporation, Tampa, Florida.

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3—That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are:

Bankers Mortgage Co., Orlando, Fla.
Sworn to and subscribed before me this 14th day of October, 1930.

MRS. H. W. STOUT.
Notary Public.

of citrus vegetable industry necessary. State experience, references, salary expected, etc. to Box 1537, Orlando, Florida.

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